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No. 2220.

AUGUST 12, 1922.

Vol. XCVII.



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AUGUST



1922

Chemist's Price List

Glaxo and Glaxo Malted Food

	Retail Price.	Net Cost Per Dozen.	Special Net Terms per dozen for Glaxo or mixed parcels of Glaxo and Glaxo Malted Food.			
			£6 Orders.	£12 Orders.	£25 Orders.	£50 Cash with Order.
Standard	1/6, 5-oz.	14/5	14/1	13/8	13/4	13/-
Glaxo	2/6, 10-oz.	24/-	23/5	22/10	22/2	21/7
(Full-Cream)	4/6, 20-oz.	43/2	42/2	41/-	40/-	38/11
	7/6, 36-oz.	72/-	70/2	68/5	66/7	64/10
Glaxo Malted Food	1/3 tin	12/-	11/8	11/5	11/1	10/10
	2/4 "	22/5	21/10	21/3	20/9	20/2

Glaxo Malted Food to the net value of £5 will be supplied by the Authorised Glaxo Distributors at the £50 rate, and sent carriage paid if cash accompanies order. Special Net Terms for £25 and £50 orders apply only in England and Wales.

SPECIAL LINES	Retail Price.	Net Cost to Retailer.
Glaxo No. 1 (Half-Cream)	2/6 (10-oz.)	24/- per doz.
Glaxo No. 2 (Three-quarter Cream)	3/- (12-oz.)	28/10 "

Glaxo Accessories

	Retail Price.	Net Cost.
Glaxo Complete Feeder	1/6 in carton	13/6 per doz.
" Spare Feeder	1/- "	9/- "
Premature Feeder (4-oz.)	1/6 "	13/6 "
Miniature Feeder (2-oz.)	1/9 ea. or 3/- pr.	13/6 "
Glaxo Teats (7 kinds)	4d. each	3/- "
Nursling Teat	9½d. "	8/6 "
Glaxo Valves	3d. "	2/3 "
Aluminium Food Measure	6d. "	4/6 "
Bottle Mop	4d. "	3/- "
Baby Clothing Patterns	4½d. "	3/- "
Knitting Directions	1d. "	9d. "
Glaxo Recipe Book	3d. "	2/- "
Maternity Belt (2 sizes)	9/6 "	7/6 each

Notes for Retailers.

Glaxo Miniature Feeders are not supplied in separate cartons, but in special boxes containing two Complete Feeders. Chemists can obtain these boxes direct, in cases of urgency, at 2/6 each, postage included, by sending a postal order to Glaxo Sales Department.

Glaxo Teats are supplied in the following seven varieties:—Ordinary (1 Medium

Square Hole), Fine Hole, 1, 3, or 5 Leechbite, Blind, and Premature. Carriage is paid on Glaxo and Glaxo Malted Food, or on mixed parcels of these two lines, to the value of not less than £3 net; also on 3 dozen Complete or Spare Feeders, and on Glaxo Teats and Valves. The terms quoted for the Maternity Belt, Baby Clothing Patterns, Knitting Directions, and Glaxo Recipe Book, include postage.

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LONDON, S.W. 20
Aug. 12 1922

To All Our Business Friends,
Everywhere.

Dear Sirs,

As from Aug. 15th the sales of Marshall's Lysol, Osyl and other "Lysol" products will be conducted direct from our offices at Raynes Park, where all inquiries and orders should be sent.

In future the trade will be called upon by our own representatives, handling "Lysol" and "Osyl" products exclusively.

The decision to make this change has been reached only after the most careful thought and consideration by the Directors of Lysol Ltd., in the firm belief that by having their sales organisation more closely under their immediate supervision, better service will be ensured to chemists and wholesalers everywhere.

Apart from this, the sales policy of Lysol Ltd. will remain unaltered. The usual bonuses for window displays, "Osyl" etc. will continue, and our representatives will also be able to offer you a special bonus on "Lysol" in addition to our usual discounts.

A steadily increasing advertising appropriation, which is being spent in the most widely circulating national magazines and London and Provincial newspapers, has been arranged.

Yours faithfully,

LYSOL Limited.

P.S.—Below is list of representatives,
please send orders or enquiries
to them or direct.



SALES REPRESENTATIVES—

Names and Addresses.	Ground.
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JAMES A. HOGG - 109 Hamilton Road, Bangor, Ireland.	Ulster.
ROBERT WOODWARD - 37 Brownhill Road, Blackburn, Lancs.	Lancashire, Cheshire and North Wales.
LEWIS SOUTHERN - 97 Stratford Road, Birmingham.	Derby, Notts, Lincs, Staffs, Salop, Warwick, Worcester, Leicester, Rutland.
D. G. TUNGATE - 5 York Place, King Street, Leeds.	Northumberland, Durham, Westmorland, Cumberland and Yorkshire.

Names and Addresses.	Ground.
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G. GRAFTON FLINN - 21 Matheson Road, West Kensington, W. 14.	London, City, West, S.E. and S.W., part N.W.
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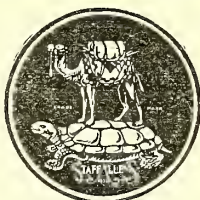
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Originally £18 18s.,
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with our well-known Guarantee, complete with Basket, two Nameplates lettered in two colours to your own design or specification, and sent Carriage Paid.

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& MORGAN
(Special Appoint-
ment to King
George), Cowes,
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This is our best Model, and is assembled with the finest component parts to be had on the market for strength and durability, irrespective of price. It has been designed and built to combat the abuse given it by the average messenger boy, and includes many improvements not shown on any other Carrier Cycle, i.e.—Double Front Forks, Motor Fork Crown and Front Hub, Wheels built up with Heavy Gauge Unbuckable Rims and Piano Wire Spokes.

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GENUINE only in YELLOW Box

THE PRO-PHY-LAC-TIC TOOTH
BRUSH made by the Florence
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ALWAYS SOLD IN THE YELLOW BOX,
is the original and genuine PRO-PHY-
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We hereby inform all dealers that the warning, as advertised by R. Addis & Son in the May 6 and July 29 issues of THE CHEMIST & DRUGGIST, does not in any way affect our rights, which we purpose to protect to the fullest extent of the British law and fair play. No dealer need be concerned in the least regarding this unfair intimidation.

The Addis registration No. 593,367, which is dated December 8, 1911, is not the number of a trade-mark registration as implied, but of a design registration, and shows a design for a tooth brush with a curved handle and a hole at the end, the same as was sold by us in the United States over thirty years ago.

FLORENCE MANUFACTURING COMPANY,

William Cordes, Treasurer,

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SOME TRULY REMARKABLE TESTIMONY FROM CHEMISTS

Who write us to tell of how "restless" they find their stocks of

REUDEL BATH SALTRATES ^{AND} ALKIA SALTRATES

The best of all preparations for the bath.

Sells at 2/- and 3/3 (double size) (P.A.T.A.).

The Acme of perfection in Salines.

Sells at 3/3 a large bottle (P.A.T.A.).

These products simply will not stay on the shelf.

NOTE.—The following statements were sent us without sollicitation of any kind.

Mr. Chas. Robertson of St. Andrews, wrote us saying that our products were proving so restless that he had difficulty in keeping them on his shelf. He had just made three sales within 15 minutes. Mr. J. L. Lewis of Harlesden, and many other Chemists have also written us telling of similar experiences.

In a recent advertisement we reproduced Mr. Robertson's letter in facsimile, and Mr. A. W. Cornish of Bristol, after reading that announcement, now writes us to say he has eclipsed even Mr. Robertson's record, having himself made four sales in five minutes.

By special permission, we reproduce below, in full, the letter which Mr. Cornish has kindly sent us.

A.W. CORNISH, M.P.S.
THE PEOPLE'S CHEMIST
 The Oxford Pharmacy 188 Lower Ashley Rd.
BRISTOL

Messrs. Saltrates Ltd.,

London. N.W.1.

April 24th.

Dear Sirs;— I was reading through reproduction of Mr Robertson's (St Andrews) letter on page twelve of to-day's date Chemist & Druggist and I think this afternoon I surpassed his feat, in my shop as above. Four customers following, purchasing Saltrates preparations, as follows.

2/- Reudel Bath Saltrates	) All in
3/3 Alkia Saltrates	) <u>five</u>
2/- Reudel Bath Saltrates	) <u>minutes</u>
3/3 " "	) <u>or so.</u>

Later on in the day I was asked for another 2/- size Reudel, but in this case the customer would not take the 3/3 size, so I missed the sale, having just sold the last small package. I am quite prepared to admit that this is a coincidence that does not often occur, and probably was in part due to other brother Pharmacists being "Sold out". But your preparations are always good sellers with me.

I thought the foregoing would interest you, and it is absolutely authentic, as my Lady Assistant can witness. If the "Tale wants adorning" and I may "point a moral", I would say never load up your shelves with goods that stick there, but to borrow Mr Robertson's "natty" phrase fill up with "restless" goods, which are restless to the point of removal for "Cash Till Food".

With compliments,
 Yours faithfully,

A.W. Cornish

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Only One in Five is Safe

Can you afford to risk your teeth and your health when the chances are four to one against you?

Dental statistics show that four people out every five contract Pyorrhœa after they pass the age of forty. Thousands younger also suffer.

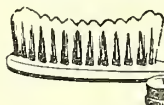
Do not neglect the first warning of Tender Gums. See your dentist at once, and start using Forhan's For the Gums.

Used consistently and in time, Forhan's will prevent Pyorrhœa or check its course. Forhan's is the only dentifrice you need. It wards off Pyorrhœa and keeps the teeth and mouth clean and healthy.

One size only, 2/6 a double sized tube. At all chemists.

If your chemist cannot supply you, send to Thos. Christy & Co., Dept. D.M., 4-12, Old Swan Lane, London, E.C.4 who will forward a tube for 2/6, post free.

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FOR THE GUMS
Checks Pyorrhœa



4 out of 5 every 5

Four people out of every five over forty, and thousands younger are victims of Pyorrhœa.

Does that include you? These figures though startling are accurate statistics which your dentist will verify.

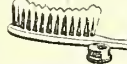
Used consistently and in time, Forhan's For the Gums will prevent Pyorrhœa or check its course. Use it as a dentifrice. It keeps the teeth and gums clean and healthy.

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Brush your teeth with it



More Interest in Hygiene More Sales of Forhan's

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Forhan's

FOR THE GUMS

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London, E.C.4.

Forhan's advertising is continued, without interruption, throughout every month of the year.

Maw's Page



This Speaks For Itself

Coventry, 1/7/22.

Please send a further barrel of 'Meritor' Brushware by next passenger train. We are in urgent need of same, as we have sold out of most of the line and have customers waiting for the Harrow and Marling Brushes.

The goods were placed in one of our windows on Monday last and four of the lines have asked for within 10 minutes.

May I offer my congratulations upon the 'selling' of the goods.

*Yours faithfully,
Chas. H. Waller.*

This is what the Meritor Scheme is doing for chemists in all parts of the country. You will appreciate the value of this actual experience of a brother pharmacist. The Meritor Series will do the same for you. Order your stock of Meritor Brushware to-day and let Meritor occupy a prominent position on your counter and in your window—it will pay you well.

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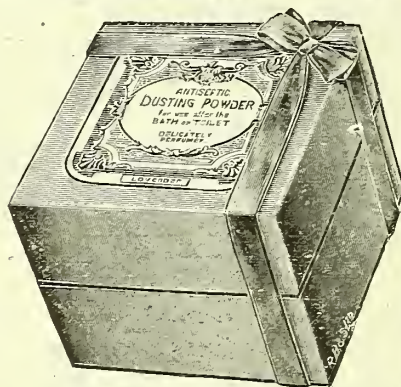
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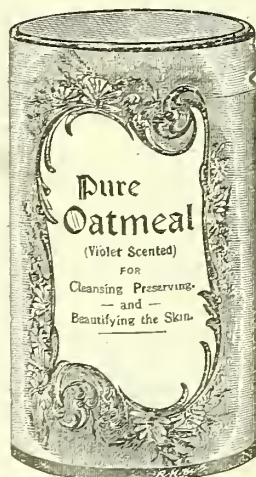
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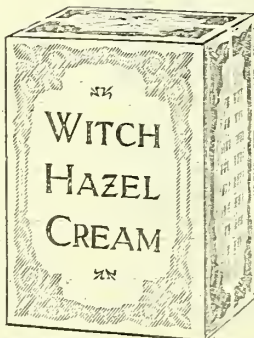
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A Cooling Cream,
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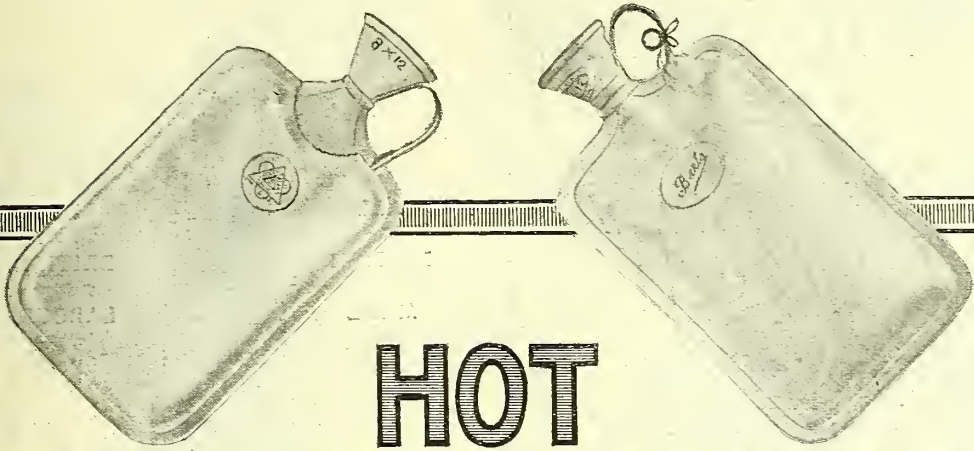
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Now is the time to Buy your
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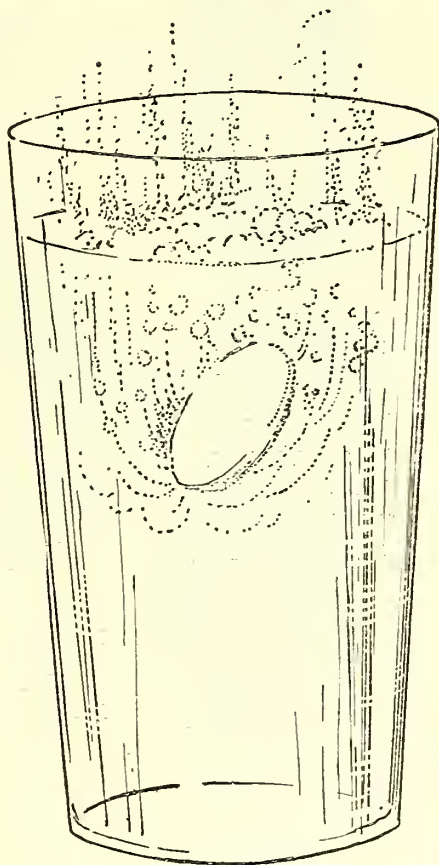
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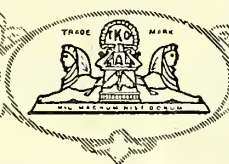
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¶ Because you save factory wages—because you avoid paying for the goodwill of someone else’s branded name—because you need keep only a “hand-to-mouth” supply of S.V.R.—because you cut out the scent manufacturer’s profit on bottles, ribbons, capping, wages, etc.—because even to-day a genuine “Distol” spirit-perfume costs round about 20/- per pint only—it pays and pays well to be a “Distolist.”

¶ The above advantages place the Chemist in an impregnable position where perfumery is concerned, but they only do so because of the high quality of “Distols” which enables him to offer perfumes equal to the best branded lines at a price as low as 2/- per oz.

¶ It is the height of short-sightedness to try and win back perfumery sales by offering a cheap perfume at a cheap price, but “Distols” enable you to offer a really good perfume at a cheap price which is the true solution of the present difficult position.

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Further particulars may be obtained from Professor
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Courses of training extending over four years provided for Students preparing for the Diploma or the Associateship of College in Chemistry in the departments of Organic and Mineral Chemistry, Metallurgy and Assaying, and Chemistry of Foods and Drugs. The Courses in Chemistry cover the ground necessary for the Associateship of the Institute of Chemistry (A.I.C.) and also qualify for the B.Sc. Degree.

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Heriot Trust Offices,
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PETER MACNAUGHTON,
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Principal:

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1922 April „ Passes 30 („ 12, „ 17).
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Such results speak for themselves.

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Enrolment commences September 19th, 1922.

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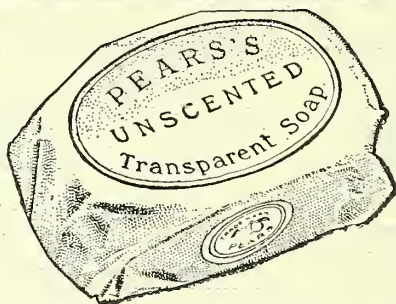
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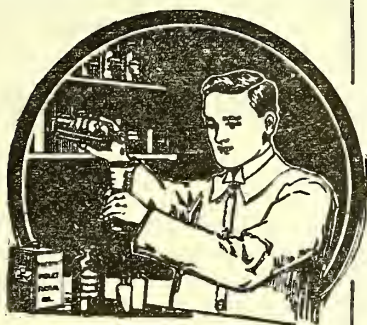
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selected plants.

As the sole selling agents for
Messrs. John Jakson & Co., Ltd.,
of Mitcham, the largest growers of
Peppermint, we are able to supply
Oil of Peppermint in sealed containers
guaranteed to meet the B.P. standard.

FRANCIS NEWBERRY

& Sons, Ltd.

LONDON & CARDIFF.

YOU HAVE NO DOUBT NOTICED IN THE
PRESS THE FOLLOWING ADVERTISEMENT

"PELDO" YOUR HANDS FIRST

Perhaps some of your customers have enquired from you about it?

If you do not already know "Peldo" we shall be pleased to send you a Trial Tube post free, so that you may learn all about it; you will then have a very interesting subject to talk about to your customers.

The following Testimonials are interesting:—

"Dear Sir,—I have now for the past 17 years washed, cleaned and done everything necessary to my car myself and have benefited greatly thereby. The only drawback to doing everything for the car with my own hands is the difficulty of keeping these members clean and presentable. After using many soaps and other concoctions I have *at last* found a way of keeping my hands in a gentlemanlike condition.

I am not an agent for, and do not wish to advertise any particular wares, but in the interest of other men who look after and keep their own cars will you tell them that 'Peldo' is all that is claimed for it by the makers."

"Dear Sirs,—After using 'Peldo' Skin Cream I feel that motoring has been robbed of its last remaining drawback.

It is now possible to be a practical motorist, and also a gentleman—at least as far as one's hands are concerned."

"Dear Sirs,—About three weeks ago I wrote to you asking for an address in Sheffield where I could buy your 'Peldo.' I purchased a tube at Messrs. ———

I thought I would like to tell you what a wonderful invention it is. My hands are always, more or less, in a bad condition in spite of using all kinds of Cream, but after *one* week of 'Peldo' they are beautifully soft and clean.

Wishing you every success."

"Dear Sirs,—Having just finished a complete overhaul, and dismantling and refitting of a J.A.P. Engine fitted to my Morgan, I feel I must write to congratulate you on having put on the market an absolute boon and blessing to all motorists who, like myself, like to do their own repairs, and don't care to have to use a file to remove the dirty oil and grease which seems to have such affinity for one's hands. Your claims for 'Peldo' are more than justified. I shall never be without it and regard it as an invention second only to that of the Petrol Engine itself.

Wishing you every success, which is richly deserved."

RETAIL PRICE

**1/6 EACH
NET**

(P.A.T.A.)

Attractive Window Display material and Showcards supplied. Sample Tubes supplied gratis in proportion to quantity ordered.

WHOLESALE PRICE

**13/6 PER
DOZ.**

In order to introduce "Peldo" we are offering a special bonus for a guaranteed window display of not less than 14 days as follows:

On orders of 1 gross a bonus of 18 full-size tubes.

On orders of 6 dozen a bonus of 8 full-size tubes.

On orders of 3 dozen a bonus of 3 full-size tubes.

Further particulars on application to

C. R. HARKER, STAGG & MORGAN, LTD.

Devon Wharf and Bell Wharf, Emmott Street, MILE END, E.1.

COMBS

LADIES' DRESSING COMBS.

No.		Per doz.
103.—	Black celluloid ...	7½ × 1½ in. 6 6
320.—	White galalith ...	7½ × 1½ in. 7 0
101.—	celluloid ...	8 × 1 in. 7 6
277.—	Black " burr grailed	8 × 1 in. 9 0
284.—	" galalith "	7½ × 1 in. 9 6
118.—	" vulcanite "	8 × 1 in. 10 0

No.		Per doz.
195.—	Black vulcanite, stout, burr grailed	8 × 1½ in. 12 6
287.—	" galalith " "	7½ × 1 in. 18 0
288.—	White " " "	7½ × 1 in. 18 0
280.—	Horn " " "	7½ × 1 in. 18 0
234.—	Mottled galalith, ex. stout, burr grailed	7½ × 1½ in. 27 6
258.—	White " " "	8 × 1½ in. 30 0

LADIES' RAKE COMBS.

No.		Per doz.
262.—	Black celluloid, burr grailed	7½ × 1½ in. 7 6
224.—	White " " "	8 × 1 in. 8 0
196.—	Black vulcanite, stout, burr grailed	8 × 1½ in. 12 6
174.—	White celluloid " "	8 × 1 in. 15 0
189.—	Black " " "	8 × 1 in. 15 0

No.		Per doz.
297.—	Black galalith, stout, burr grailed	7½ × 1½ in. 18 0
293.—	White " " "	7½ × 1½ in. 18 0
281.—	Horn " " "	7½ × 1½ in. 18 0
233.—	Mottled " extra stout, burr grailed	7½ × 1½ in. 27 6
259.—	" " " "	8 × 1½ in. 30 0

SMALL TOOTH COMBS.

No.		Per doz.
250.—	White galalith ...	3 × 1½ in. 3 0
250a.—	Black " ...	3 × 1 in. 3 0
182.—	" " ...	3 × 1 in. 4 6
192.—	" vulcanite ...	3 × 1 in. 5 0

No.		Per doz.
176.—	White galalith ...	4 × 2 in. 6 6
177.—	Blonde " ...	4 × 2 in. 6 6
296.—	Steel " ...	3½ × 2 in. 7 0
202.—	Black vulcanite ...	3½ × 2 in. 7 6

A discount of 5% for prompt cash is allowed on all amounts of 10/- and upwards. Money returned if goods are not satisfactory. Write for illustrated price lists, post free for the asking.

BURGE, WARREN & RIDGLEY, Ltd.
91 & 92 GREAT SAFFRON HILL - LONDON, E.C. 1.

BIDWELLS

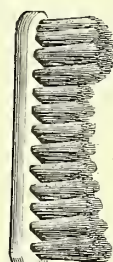


"Prophylactic" TOOTH BRUSH

MEDIUM 16/- DOZ.
HARD 18/- DOZ.
in Cartons.



**Castle Mills,
Axminster - - Devon.**



Retail
2/6 each.
Wholesale
18/5 per doz.

Massa tell him customer
buy Sylvester Toof Brush
Plenty good for him Teebs

**THE "DR. SYLVESTER"
MODEL.**

EACH BRUSH IN A CARTON SEALED
AT FACTORY.

Very Hard Yellow—Hard—Medium—Soft.

Sold by the following Wholesale Druggists:
Berton, A., Ltd. Osborne, Garratt & Co. Ltd.
Edwards, W. & Son. Newbery, F. & Sons Ltd.

W. R. TILBURY & SON,
47 Frampton Park Road, Hackney, N.E.
Phone: 1794 Dalston.

MARCUSON'S FOR SPONGES

WE DEFY COMPETITION

Buying in Large Quantities, and being unfettered by any combine, we can offer at exceptionally advantageous prices.

REMEMBER WE ARE ACTUAL IMPORTERS

MARCUSON BROS. & CO.

Only ENGLISH Address—32 MINORIES, LONDON, E.1.

CABLES: "PANTALARIA, ALD, LONDON."

PHONE: AVENUE 840.

Pyramid Policy

THE making of fine Corks is not a secret process—although there are wrinkles. And experience makes a difference! There is one thing that *does* count. It is this.

PYRAMID CORKS

better corks because of the Pyramid Policy. We could use cheaper corks and get the same price—but it's not best. And honesty is the Pyramid Policy. 100% value for money—nothing less—that is what has built this business.

Write for Pyramid Prices and Samples to-day.

N. W. Mitchell & Sons, Ltd.,

"The Cork Firm."

Limehouse, London, E. 14.



Do not underestimate the importance of securing stand space at the

Manchester Chemists' Exhibition

This event is engaging the keenest interest of the trade. You can rest assured that there will be a large attendance of manufacturing, wholesale and retail chemists from the most important markets in the North of England.

November 20th—25th, 1922,

under the auspices of the

**Manchester Pharmaceutical Association,
Salford Pharmaceutical Association,
Accrington and District
Pharmacists' Association.**

For plans and particulars of space still available apply

**PROVINCIAL EXHIBITIONS, LIMITED
CITY HALL, MANCHESTER.**

Telephone: 3832-3 City. Telegrams: "Exhibition, Manchester."

The SURGICAL HOSIERY Co. Ltd.

(Department B),

RUSSELL STREET, NOTTINGHAM.

Manufacturers and Patentees of

SURCO SEAMLESS HOSIERY

In Light qualities for Summer wear, or Stout for hard wear.



Old Style
With Seams



"Surco"
Patent Seamless

Price List and Measurement Forms on Application.

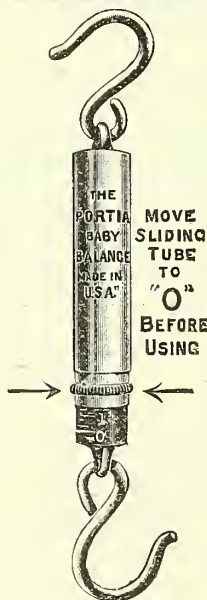
Articles made to measure dispatched in 24 hours.

THE "PORTIA" ADJUSTABLE BABY'S BALANCE

Also
complete
with
Netted
String
Hammock,



Write
for
Prices.



Always
Accurate.



The
BEST
and the
Handiest
Portable
Baby's
Balance.



Obtainable from all Wholesalers.

SOLPORT BROTHERS, Ltd.
184/190 Goswell Road, LONDON, E.C. 1.

CURASOL

THE ORIGINAL

Boracic Socks

Fixed Selling Price, 6d. per pair.

Cost, 4/- per dozen.

Six dozen lots, 46/- per gross.

Distributing Agents :

England and Wales—

Sangers, 42a Hampstead Rd., London, N.W. 1.

Scotland—

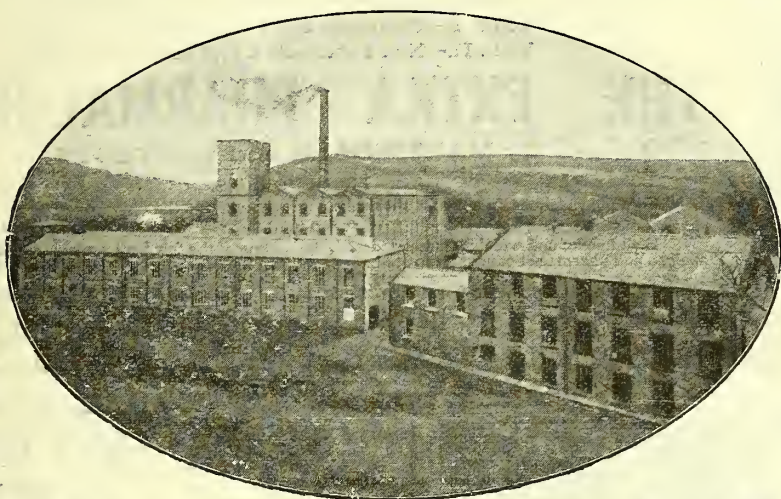
Munro, M'Laren & Sutherland,
17 Cadogan Street, Glasgow.

For Sample Pair (state size) send Postcard to—

The Curasol Sock Co.

19/20 Garlick Hill - - LONDON, E.C. 4.

Trade Mark.

Ins't on having
"Wardella" Brand.

Reg. Trade Mark.

Ins't on having
"Wardella" Brand.

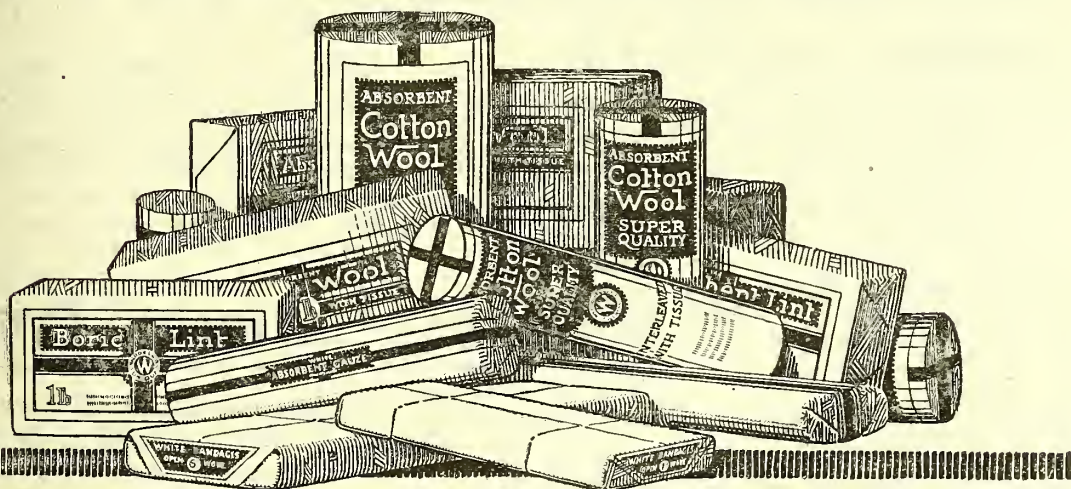
WARDELLA SURGICAL DRESSINGS

of SUPER QUALITY

WHOLESALE AND EXPORT ONLY

Absorbent Lint, Boric Lint, Bandages, Gauzes, Gauze Tissue,
Cotton Wools, Coiled Wool, Grey Wools, Capsicum Tissue,
Sanitary Towels, Dental Gauzes and Napkins, Hygienic Squares.

BLEACHERS OF BANDAGE CLOTHS, GAUZES, etc.,
TO THE TRADE. Also ABSORBENT COTTON.



THE WARDLE COTTON Co., Ltd., WARDLE, near ROCHDALE.

Spinners and Manufacturers from the raw material to the finished product.

NDON: 9, FORE STREET AVENUE, E.C.2

SOLE AGENTS for all parts of ASIA, AFRICA, CENTRAL AND SOUTH AMERICA,
AYRTON, SAUNDERS & CO., LTD., LIVERPOOL,
to whom enquiries and orders for "Wardella" Brand goods should be addressed



COMPLETE WORK, 2 Volumes, 1920-21, price **44/6** net, post free **45/-**
 VOL. I.—Separately **27/-** net, post free **27/6**.
 VOL. II.—Now Published, **17/6** net, post free **18/-**

THE EXTRA PHARMACOPŒIA

By MARTINDALE and WESTCOTT.

PRESS NOTICES.

"A unique vade-mecum alike for the medical practitioner and the pharmacist."

Pharmaceutical Journal.

"Well known and widely appreciated . . . one of the few books which medical practitioner, analyst, and pharmacist cannot afford to be without."—*Lancet.*

Descriptive Leaflet on application.

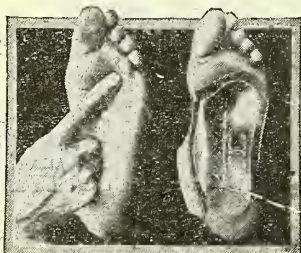
On the P.A.T.A. at face value.

London: **H. K. LEWIS & CO. Ltd., 136 Gower Street, W.C.1**

Also of **W. MARTINDALE, 10 New Cavendish Street, London, W.1.**



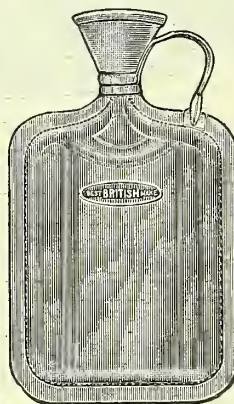
enables you to relieve and correct every type of foot trouble. Our tremendous National Advertising ensures a ready sale for Dr. Scholl's Appliances and Specialities, which are anatomically correct and approved by the medical profession. Write for full particulars.



DR. SCHOLL'S ANTERIOR METATARSAL ARCH SUPPORT restores the arch across the ball of the foot. Relieves and corrects pressure and pain at the sole, bunions, &c.

Price per pair **12/6**

THE SCHOLL MFG. CO., LTD., 1-4 GILTSPUR STREET, E.C.1.



HOT WATER BOTTLES

BEST BRITISH MAKE.

Can we quote for your season's requirements with sample on approval?

Advertising Balloons a Speciality and all Surgical Rubber Goods.

JAMES TOMPKINS Ltd.

386 CITY ROAD, LONDON, E.C.1

Estd. 45 years. Phone: Clerkenwell 3774.

£3,000 worth of orders for £26 10s.

A Leicester firm of Boot and Shoe Manufacturers writing to the "Christian Herald" in March, 1920, said:

"The result of the advertisement in only one issue has been so good that it surprised us; we have been so rushed with orders that in a few cases we have not been able to supply yet. The £13 advertisement has brought nearly £200 worth of satisfied customers from the British Isles, Shetland and Orkneys, Jersey and Guernsey, etc." A further letter from the same firm dated January 1st, 1921, says: "The total business done from our original advertisements in February and March, 1920, runs into over £3,000 to date. The original advertisements cost £26 10s.

Messrs. The British Vacuum Washer Co., Waterloo Road, Liverpool, in a letter to the "Christian Herald," dated February 17th, 1921, say: "We have great pleasure in bearing testimony to the splendid pulling power of your valued paper. We do not make a rule of writing testimonials, but we feel it to be our duty to do so in this case. We have been advertising in the 'Christian Herald' for a considerable time, and the very large number of orders which we have received bears eloquent testimony to its value as an advertising medium."

A firm of Manufacturers' Agents, writing on Sept. 30th, 1921, say: "The advertisement has proved quite satisfactory, and in giving instructions for their advertisement to be continued, say:

"We find missing a week is very detrimental to us."

Another firm in North of England has had to apologise to "Christian Herald" readers "owing to enormous demand having temporarily depleted their stock."

It pays to advertise in the "CHRISTIAN HERALD."

For Specimen Copy and Rate Card apply to—
 The Advertisement Manager, "CHRISTIAN HERALD,"
 6 TUDOR STREET, LONDON, E.C.4.



Can you supply any colour in Drummer Dyes?

A customer comes to you for a Mary Blue Drummer Dye . . . she will not have a Saxe or a Light Blue, but will get her Mary Blue elsewhere if you cannot supply. If she asks for Daffodil she will not accept Tangerine.

There are 26 Drummer Dye Colours, and it pays to keep your stocks complete.

DRUMMER DYES

The 26 colours are consistently advertised on a national scheme. Retail at 4d. each.

Trade Terms, Showcards, etc., sent by
Wm. EDGE & SONS, Ltd., BOLTON.

Canadian Offices: Maclure & Langley, Toronto and Montreal.





**EXPRESS
DELIVERY**
to meet all
Customers'
requirements.

**FULLY
STOCKED**

TELEGRAMS: "ROBORANS,
SMITH, LONDON."



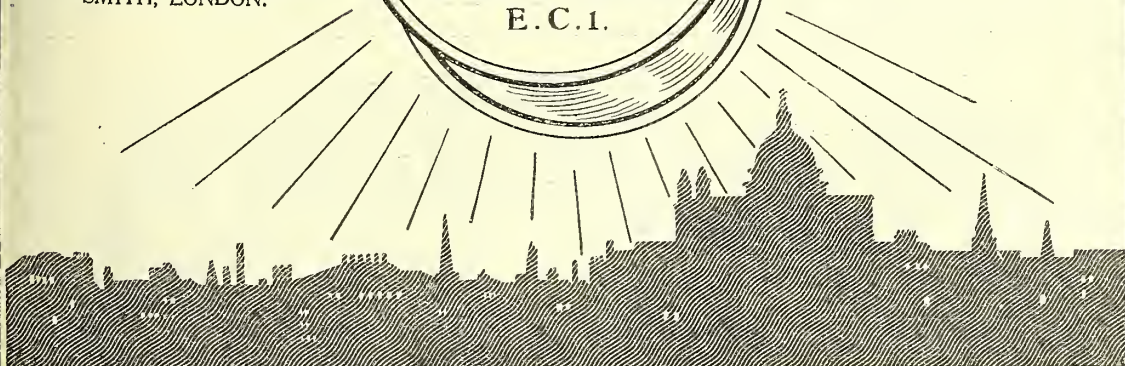
Edward Taylor Limited

**SALFORD
MANCHESTER**

*Manufacturers of Medical
and Surgical Plasters, beg to
announce the opening of their
London Warehouse as below
on Aug. 8. Henceforward
all London and shipping orders
can be filled with the utmost
promptitude from London stock.
Come and see what we are
doing to serve your interests.*

Please note that this
is not just a London
Office, but a com-
pletely stocked Ware-
house, the fullest of its
kind, we believe.

PHONE: HOLBORN 4637.



A. Ruch & Co

ESTABLISHED 1880.



G. GRANT FORSYTH.
R. BRUCE FORSYTH.
W. FRASER FORSYTH.



GLASS BOTTLES

of every description.

ENQUIRIES INVITED

28 Martin Lane, Cannon St., London, E.C. 4.

Telegrams: "Sennoek, Cannon, London." Phone: Central 4799.

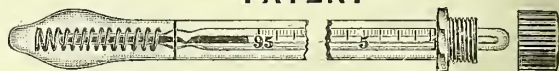
A. C. COSSOR & SON

Established 1859.

High Class Clinical Thermometers



PATENT



THE ACCOSON ASEPTIC CLINICAL.

The Thermometer is sterilised each time it is placed in the case, and the markings on the tube are not defaced. Any 4" clinical will fit the case.

Prices on application or can be obtained from all Wholesale Houses. ORIGINAL PATENTEES OF EASY SET CLINICAL THERMOMETERS. Contractors to all Government Departments.

Accoson Works, Vale Road, London, N.4.

Telephone: Tottenham 1880.

HYGIENIC FEEDERS (Boat Shape)

Best Quality English White Glass

SPECIAL OFFER

1 Gross sent Carriage Paid for 38/-

Special quotations for larger quantities.

Cheapest house for DISPENSING BOTTLES

Good Stock of all kinds.

I. ISAACS & CO., Glass Bottle Manufacturers,

Head Office: 106 Midland Road, London, N.W. 1.

Warehouse & Stores: Midland Railway Goods Depot, St. Pancras.

Phone: Museum 4209. Telegrams: "Isaglasbot, Kincross, London."

ESTABLISHED 100 YEARS.

American GILLETTE BLADES

BRAND NEW STOCK.

My Price - - 33/- per box of 10 doz.

POST PAID. Special price for larger quantities.

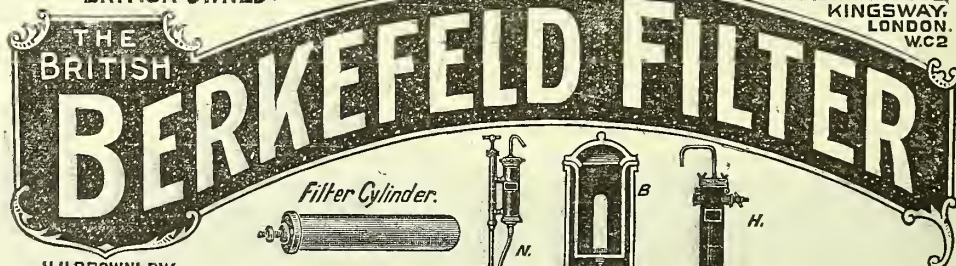
A. Louis & Co., 38 Whitechapel Rd., London, E.1

PERFUMERY, TOILET ARTICLES, and SUNDRIES

by leading British, American and Continental Manufacturers can be supplied in wholesale quantities. Price list on application to

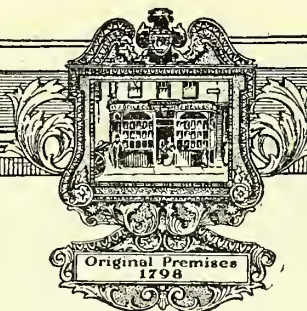
A. B. MEIKLE, Red Lion House, Red Lion Ct., London, E.C.4.

BRITISH OWNED.



H.H. BROWNLOW.
R.S. BROWNLOW.

SARDINIA HOUSE,
KINGSWAY,
LONDON.
W.C.2



The "MARYLEBONE"

STERILIZED

ACCOUCHEMENT OUTFITS.

These Outfits contain sufficient dressings, etc., for the accouchement.

THE "MARYLEBONE" OUTFITS are always "GOOD STOCK" as the contents cannot deteriorate or become soiled, and sterility is maintained.

Retail Prices :

No. 1 Outfit

31/6

No. 2 Outfit

63/-

Trade Terms and descriptive literature on application.

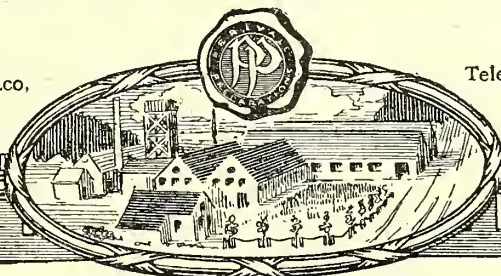
IT WILL PAY the Pharmacist to hold stocks of these outfits. A large demand is being created by means of an intensive Press campaign.

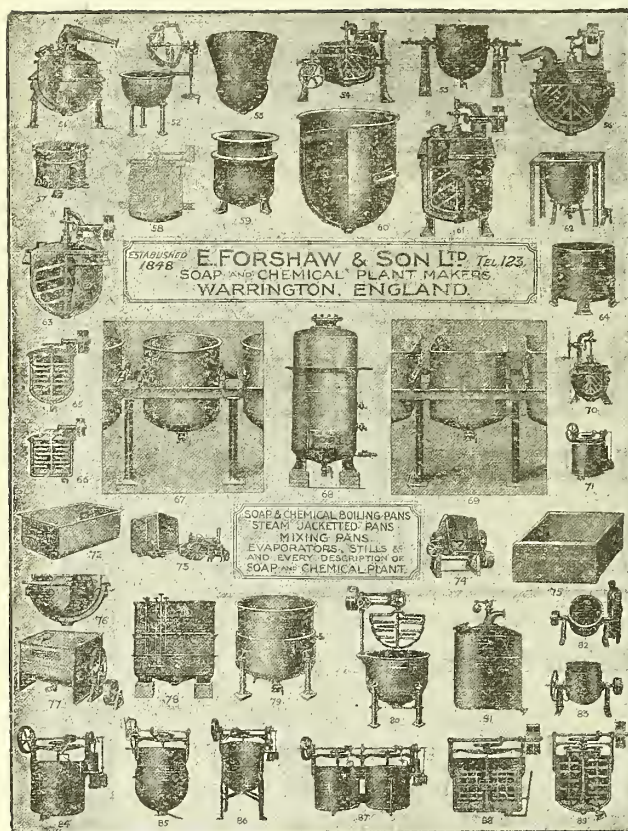
JOHN BELL & CROYDEN, Ltd.

50 Wigmore Street, LONDON, W. 1.

Telegrams : " Croybelaco,
Wesdo, London."

Telephone: Mayfair 5015
(4 lines.)





ESTABLISHED 1876

E. FORSHAW & SON LTD. Tel. 123.
SOAP AND CHEMICAL PLANT MAKERS
WARRINGTON, ENGLAND.

SOAP & CHEMICAL BOILING PANS
STEAM JACKETED PANS
MIXING PANS
EVAPORATORS, STILLERS &
AND EVERY DESCRIPTION OF
SOAP AND CHEMICAL PLANT.



No 1 Plant for Experimental purposes

No 2 Plant Output 100 to 200 pounds per day

No 3 Plant Output 300 to 400 pounds per day

No 5 Plant Output 2000 to 2500 pounds per day

No 4 Plant Output 600 to 1000 pounds per day

Established 1876
Telephone 123

E. Forshaw & Son Ltd.
SOAP AND CHEMICAL PLANT MAKERS
WARRINGTON, ENGLAND.

MILLED TOILET SOAP PLANT.
HOUSEHOLD AND LAUNDRY SOAP PLANT.
GLYCERINE EXTRACTION PLANT.
CAUSTICIZING PLANT.
TALLOW MELTING PLANT.

No 6 large combined triple granite roller mill with triple rotary cutter. Granite rollers 12 inches long, 20 inches diameter.

No 7 improved multiple roller mill with 10 roller sets. This may be used in conjunction with our No 6 or No 7 plodder. Output 3 tons per day.

No 8 mammoth plodder with reduction gear for motor drive. Output 3 tons per day.

No 6 Grant bronze lined plodder. Output 2 tons per day.

Toilet Bar Cutting Machine

Rotary Cutter or shredder.

No 6 Grant Quadruple Roller Mill. Output 2 tons per day.

When you order Birdlime always specify "Kay's Cheshire"

The Shooting Times says:—

"The best Birdlime we are acquainted with."

The Gamekeeper says:

"As perfect as it can be made."

Kay's Cheshire Birdlime makes a simple, efficient and safe mousetrap. For catching ants, beetles, wood-lice and similar creeping vermin, it is unrivalled.

Bulk packings:—

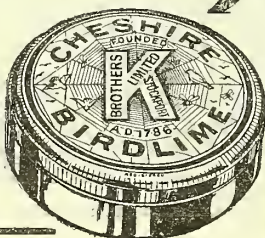
Tins of 1 lb., 2 lb., 4 lb., 7 lb., and 40 lbs., drums, kegs and casks.

Small tins for Counter Sale:—

No. 1.	Approx. 3 drms.
" 2.	" 7 "
" 3.	" 10 "
" 4.	" 20 "

From all wholesalers and the Sole Makers:

KAY BROTHERS, Ltd.
STOCKPORT.



The original and oldest STICKY FLY CATCHER in the Market. 36 years' reputation.

The 'Fly Cemetery,' in Sheets.
The 'Catch O' Paper, ditto
The 'Cemetery' Fly Band, 3in. wide
The 'Swallow' Fly Band, 1½ in. wide

Prices on Application.

MANUFACTURERS—

Tunbridge & Wright, Reading

Telegraphic Address—"Flies Reading."

SHOWCASES

UPRIGHT CENTRE CASES, WALL CASES,
GLASS COUNTERS, MIRRORS,
WINDOW FITTINGS, GLASS SHELVES,
SHOW STANDS, DRAWERS, DESKS,
CHECK TILLS, &c. Immense Stock.
NEW and SECOND-HAND.

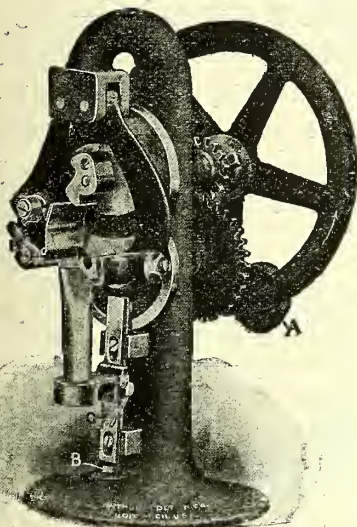
Ready for Immediate Delivery.

For Sale or Hire.

FREDERICK MAUND,
169 Old St., LONDON, E.C. 1.

COLTON

PHARMACEUTICAL MACHINERY



HAND TUBE CLOSER.

THE Hand Tube Closer is made in two Sizes, to take tubes of diameters ranging from $\frac{1}{4}$ " to $1\frac{1}{2}$ " and has a capacity of 15 tubes per minute. The operation of the machine is very simple—two revolutions of the hand-wheel producing a neat and effective seal.

Where a more permanent sealing of the tube is required, we recommend the use of a Foot Power Closer and Nickeloid Clips.

Full particulars of the machines and samples of Clips sent on application.

Please send us samples of your tubes so that we may demonstrate the effectiveness of Nickeloid Clips.

Sole
British
Agents:

JOHN J. GRIFFIN & SONS, LTD.
Kemble Street, Kingsway, LONDON, W.C. 2.

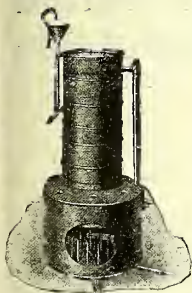
Laboratory Fittings and Equipment.

SPECIALITIES: Benches, Fume Cupboards, Stills, Drying Ovens, Gas, Water and Steam Fittings. Electrically Heated Apparatus.

Quotations submitted for the complete equipment and installation of apparatus and plant for Educational Research, and Commercial Laboratories. *Lists Free.*

Stills, as illustrated, for gas and steam heating, made in sizes from 1 to 12 galls. per hour. Prices on application.

BROWN & SON,
ALEMBIC WORKS,
WEDMORE STREET, HOLLOWAY,
LONDON, N. 19.



GARDNER'S PATENT "RAPID" SIFTERS & MIXERS

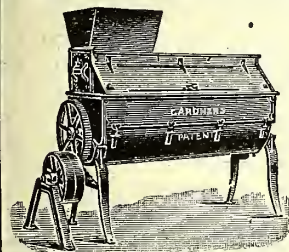
OVER 6,000

working in almost every Trade where POWDERS are Sifted and Mixed and Lumps Reduced, all being done at one operation and without loss by dust.

FOR HAND OR POWER.

CATALOGUES FREE.

WM. GARDNER & SONS (GLOUCESTER) Ltd.
Engineers, GLOUCESTER.



BOTTLE WASHING MACHINES

To suit every description of Bottle.

DAWSON BROS., LTD.

THE WORLD-RENOUNDED
BOTTLE-WASHING MACHINE MAKERS,

VENTNOR WORKS,
GOMERSAL, NR. LEEDS.

WRITE FOR COMPLETE CATALOGUE.



*The Sign of
Satisfaction.*

CLEAN bright negatives, crisp brilliant prints, rich deep velvety enlargements—these are the qualities which sell more photographic sundries—they are the qualities you always get when you send your Amateur Finishing Orders to us. Send a trial order now and criticise it! Remember a satisfied customer is your best advertisement—it is ours too!

The Express Developing Co.,
296 HIGH ROAD, STREATHAM, S.W. 11.

PURE ORANGE WINE

A. MILLAR & CO., LTD., DUBLIN

(VINUM AURANTII B.P.)

Prepared in strict accordance with the Formula of the British Pharmacopœia.

(Wholesale only.)

Samples from Head Office, Thomas Street, DUBLIN, or London Office, 43 Great Tower Street, LONDON. E.C. 3.

D. AND P. SERVICE

For the LIVE KODAK DEALER.
Same Day Return—Finest Results.
PRICES RIGHT—PROFITS RIGHT.
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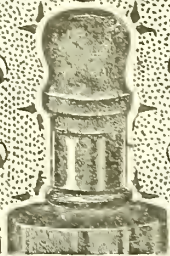
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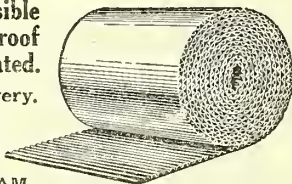
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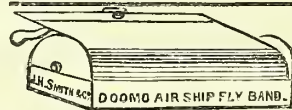
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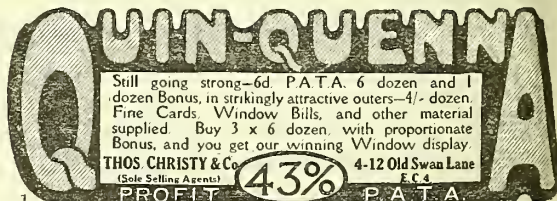
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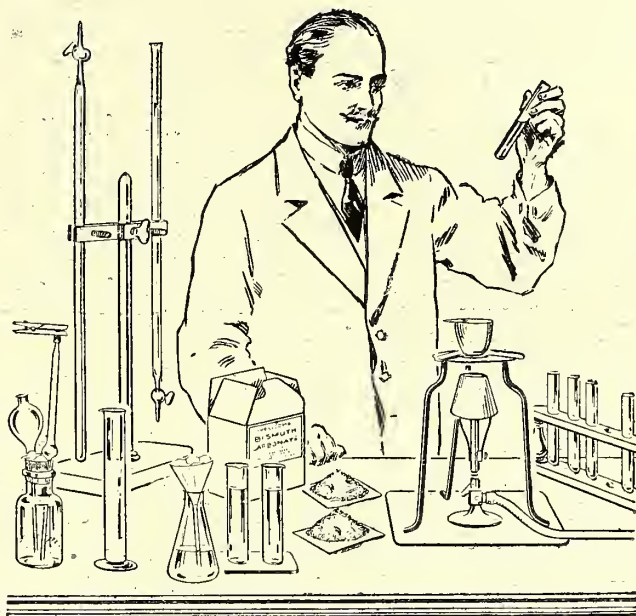
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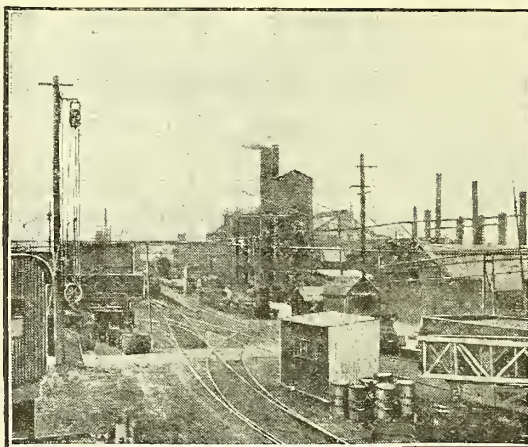
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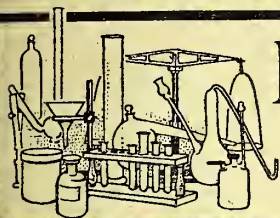
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The Chemist & Druggist

Educational Number

AUGUST 12, 1922.

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Poisonings

The following cases of fatal poisoning, among others, have been recorded since our last report:—

At Black Rock, Brighton, Herbert O. H. Etheridge, mining engineer, committed suicide by taking potassium cyanide while of unsound mind.

At Edgbaston, Mr. O. F. Freeman, an ex-Councillor of Birmingham, died from an overdose of a hypodermic injection of morphine. The verdict at the inquest was "Death by misadventure."

A verdict of "Suicide" was returned at an inquest held at Newcastle-on-Tyne, on August 9, on the body of Mary Saunders, formerly a lady's companion at Southport. The report of the city analyst (Dr. J. T. Dunn) showed that a bottle found in the bedroom of the deceased woman contained laudanum, and there was about $\frac{1}{2}$ oz. in the bottle. In the stomach was found about 0.75 gram of salt of lemon. He had no doubt that death was due to taking salt of lemon, though the amount found in the stomach would not be sufficient in itself to cause a rapid death.

The Stepney coroner, at an inquest held in Wapping, on August 9, on the body of a man who committed suicide by coal-gas poisoning, asked the medical witness if there was more carbon monoxide in gas than formerly. The doctor replied that there was. It used to be from 8 to 9 per cent, but the proportion at the present time was between 11 and 12 per cent. The coroner said he was inclined to think that at the present time there were more cases of suicide by this means than by any other.

English and Welsh News

The Editor would be obliged if subscribers would send him marked copies of newspapers containing items of interest for insertion in this or other news sections.

Safeguarding of Industries

Certificates of Origin

In exercise of the powers conferred upon them by Section 5 of the Safeguarding of Industries Act, the Board of Trade have directed that certificates of origin shall be required, so far as concerns the classes or descriptions of goods covered by the Schedule to the Safeguarding of Industries (No. 1) Order, 1922, in the case of goods consigned from all foreign countries in Europe. The necessary instructions have been issued to his Majesty's Consular officers in the countries concerned, and the form of certificate of origin prescribed by the Board of Trade can be seen on application to any Customs and Excise office.

Glass Bottle Inquiry

The Board of Trade have now received the report of the Committee appointed, under the chairmanship of Mr. C. A. Russell, K.C., to inquire into two separate complaints under Part II. of the Safeguarding of Industries Act relating to glass bottles manufactured in Holland and in Germany respectively. The report, which will be published and presented to Parliament, is to the effect that the conditions laid down in Section 2 (1) of the Act are not fulfilled. Consequently, in view of Section 2 (3) of the Act, the Board of Trade are unable to take any further action in respect of the complaints in question.

Sodium Hyposulphite Importations

The British Chemical Trade Association have sent out the following notice to members:—

Members are warned that they must not take it for granted that under this decision pea crystals of under 99 per cent. purity will not now be liable to the duty on import. It is understood that Customs have instructions to hold up all imports of hyposulphite of soda in pea crystal form, and so far we have been unable to get a definite interpretation from the officials concerned. There is some reason to believe that Customs will levy duty on pea crystals irrespective of their percentage of purity, despite the recent ruling of the Referee. The question is being taken up, and directly a definite ruling is obtained our members will be advised, but for the time being we would strongly advise them not to assume that pea crystals, say of 97 per cent., would not be liable to the import tax. The official attitude has caused serious trouble already, and has been the means of the loss of much business, as it has been so far impossible to obtain news as to what will, and what will not, be liable to the tax.

Dental Board

Mr. Norman C. King, Registrar of the Dental Board of the United Kingdom, 44, Hallam Street, London, W.1, has issued the following notice:—

There is reason to think that the postponement of the date on which the Dentists Act, 1921, will come into force from the 23rd of July until the 30th of November this year has given rise to some misapprehension. I am therefore directed to write and say that any practitioner who has been registered comes within the jurisdiction of the Board, and should pay very careful attention to its warning notice

in regard to advertising and canvassing. The extension of the Act does not permit any relaxation in regard to this.

It is possible that there are some practitioners who have been notified that they are eligible for registration who are refraining from completing their applications in order that they may be able to continue the practice of advertising and canvassing. If any such cases were brought to the notice of the Board this matter might have a bearing on the question of good personal character.

There are some practitioners who have in their employment assistants who are intending to pass the prescribed examination as soon as they can. The Board would be unwilling that these unregistered assistants should be penalised. At the same time, the warning notice in regard to "covering" must be observed, and such assistants should confine their work to mechanical duties or to matters which do not require professional discretion or skill, and should perform them only under the immediate personal supervision of their employers.

I have to add that the concession that ex-Service candidates may count work done up to July, 1922, instead of only to July, 1921, has no bearing upon the eligibility for registration of those who had not attained the age of 23 years on July 23, 1921. The question of age is one upon which the Act is very definite, and the Board has no discretion in regard to this matter.

The Chemical Works Regulations, 1922

The Home Office has issued Statutory Rules and Orders, 1922, No. 731 (Stationery Office, 4d. net), dealing, under Section 79 of the Factory and Workshop Act, 1901, with manufactures and processes carried on in chemical works. Among the definitions given are: "Bleaching powder" means the bleaching powder commonly called chloride of lime; "chlorate" means chlorate or perchlorate; "caustic" means hydroxide of potassium or sodium. The following schedule is affixed to the Regulations:—

Chemical works means any works or that part of a works in which:—

1. The manufacture or recovery of any of the following is carried on:—

(a) Carbonates, chromates, chlorates, oxides or hydroxides of potassium, sodium, iron, aluminium, cobalt, nickel, arsenic, antimony, zinc or magnesium.

(b) Ammonia and the hydroxide and salts of ammonium.

(c) Sulphurous, sulphuric, nitric, hydrochloric, hydrofluoric, hydriodic, hydrosulphuric, boric, phosphoric, arsenious, arsenic, lactic, acetic, oxalic, tartaric or citric acids and their metallic or organic salts, and

(d) Cyanogen compounds.

2. A wet process is carried on

(a) For the extraction of metal from ore or from any by-product or residual material; or

(b) In which electrical energy is used in any process of chemical manufacture.

3. Alkali waste or the drainage therefrom is subjected to any chemical process for the recovery of sulphur, or for the utilisation of any constituent of such waste or drainage.

4. Carbon bisulphide is made or hydrogen sulphide is evolved by the decomposition of metallic sulphides, or hydrogen sulphide is used in the production of such sulphides.

5. Bleaching powder is manufactured or chlorine gas is made or is used in the process of chemical manufacture.

6.—(a) Gas tar or coal tar or any compound product or residue of such tars is distilled or is used in any process of chemical manufacture.

(b) Synthetic colouring matters or their intermediates are made.

7. The refining of crude shale oil or processes incidental thereto are carried on.

8. Nitric acid is used in the manufacture of nitro compounds.

9. Explosives are made with the use of nitro compounds.

The Regulations provide for a sufficient number of first-aid boxes, each containing an outfit of the kind made familiar in previous Rules and Orders.

Standards of Weight and Measure Tested

On August 4, in the presence of the Speaker of the House of Commons, and several officials and members of Parliament, the copies of the standards of weight and measure which had been removed from their place in the walls of the House (*C. & D.*, June 17, p. 39), were re-immured, after a statement from Mr. Percy Ashley, Assistant Secretary to the Board of Trade. Comparison with the Imperial standards showed that the yard

measure was 0.0001 inch too short, and the pound weight 0.00286 gr. too heavy. Mr. Ashley explained that the Imperial yard was defined by statute as a straight line between the centres of two pins or plugs upon the bar in question at a temperature of 62° Fahrenheit, while the Imperial pound was the weight in vacuum of a particular piece of platinum. The standards were destroyed when the Palace of Westminster was burned in 1834 but new ones were ordered. The "copies" were compared with each other every ten years, and with the Imperial standard once in twenty years. The "copy" immured in a cavity of one of the walls of the Palace of Westminster was specially exempted, but the Board of Trade thought it well to make occasional comparison. The last was made in 1892. Mr. Sears said, in regard to the yard standard, that slight markings were found upon it when it was taken from the wall. This might be due to electrolytic action. The springs at each end of the bar to keep it in position were slack, but these had been tightened, and slips of mica had been used to insulate the bar from all contact with other metals. A suggestion had been made that vibration was set up during the air raids, for it was considered certain that ordinary traffic could not cause the change. The bar was not regarded as having been damaged. The slight variations mentioned, though of no importance for ordinary purposes, were not negligible from the scientific point of view. Variations had been discovered on previous occasions, and these might be due to the Imperial standard itself, which was used from time to time. The surface was very slightly pitted, and that might be due to the former difficulty of securing flawless platinum.

Birmingham

Mr. Kenneth M. Chance has resigned from the Oldbury Urban District Council.

Owing to repairs New Street is to be closed to vehicular traffic from Temple Street to Pinfold Street for three weeks.

Mr. George Cadbury has presented £5,000 to the West China University, Chengtu-fu, for the building of a teachers' training college.

Liverpool

"Chemist and Pharmacist" as a title on signs and labels is on the increase.

The winter session of the Liverpool Chemists' Association will be opened with a dance.

The *C. & D.* account and photographs of the Nottingham Conference have attracted great interest.

Mr. Ralph G. Govier, Wallasey, has returned from London after a successful operation, and is recuperating at Blackpool.

Miscellaneous shops have so flooded the market with inferior safety-razors that a reaction in favour of ordinary razors has set in.

Mr. J. L. Hirst is now in Yorkshire on a holiday, which will be concluded at Port St. Mary.—Mr. D. H. Evans is on holiday in South Wales.

An old boot, with an ear of corn sprouting from the toe, has proved an attraction in a window-display of corn-cures and other preparations for the feet.

Pharmacists in the central area who opened for sale of medicines and surgical requisites only on Bank Holiday kept Sunday hours, business being meagre. On the preceding Saturday business was also below the average.

Mr. W. J. Williams, A.C.I.S., chemist and druggist, has passed the final examination of the London Association of Accountants. Mr. Williams will be remembered by many pharmacists as the indefatigable assistant local secretary at the Liverpool meeting of the British Pharmaceutical Conference in 1920.

Mr. J. A. W. Walker, Ph.C., Northcote, Melbourne, Victoria, was in Liverpool on August 8, en route for Chester and Birmingham. Mr. Walker is making a tour of Great Britain, and will leave for New York on August

on the "Mauretania," thence to Vancouver and home. His previous visit was to the Chester Conference in 1914, when he was accompanied by three other Australian chemists.

A little time ago a chemist belonging to the neighbourhood of Liverpool was spending a holiday in Edinburgh. Running short of cash, he thought of the North British branch of the Pharmaceutical Society, and wended his way to York Place. Here he had a reminiscence of ygone "Minor" days in the shape of a thorough cross-examination to establish his identity, which being accomplished, the sought-for advance was made. A cheque on an English bank was looked at askance, however, the applicant being informed that an I.O.U. was preferred. This was readily forthcoming, of course, and on the morrow reaching home the sum was returned, accompanied by a letter of thanks.

Manchester

At Salford Police Court, on August 2, Reginald Vaughan (37), Tranmere Street, Hulme, was sentenced to fourteen days' hard labour for stealing three bottles of ace-cream and ten tablets of soap, the property of his employers, James Woolley, Sons and Co., Ltd., Victoria Bridge. A representative of the company stated that pilfering had been going on daily for years.

At Manchester City Sessions, on August 2, John Wilson (35), described as a chemist, pleaded "Guilty," together with a labourer named Chapman, to having broken into the shop of Alfred E. Briggs, photographic dealer, Oxford Road, and stolen cameras valued at £100. There was another similar count in the charge, and the Recorder, in binding over the accused, made it a condition that he abstained from drink for twelve months. Wilson's father, who was present, promised to take him to his native place, the Orkneys.

Miscellaneous

WHOLESALE DRUGGISTS' CRICKET CHAMPIONSHIP.—A cricket match played at Crouch End, London, N., on August 5, between elevens representing "Allenburys," and The British Drug Houses, Ltd., resulted in a win for the former team. The scores were: B.D.H., 43; "Allenburys," 97. For the winners W. J. Stokes took 4 wickets for 4 runs, and W. T. Stokes was top scorer with 30.

SWIMMING CONTEST.—A friendly team race between the swimming clubs of Parke, Davis & Co. and The British Drug Houses, Ltd., was held at Pitfield Street Baths, London, N., on August 8, the latter winning by sixteen seconds. The teams were: P.D.S.C., Messrs. Bradford, Burnett, Lawman, Mertling, Redman and Tyler. The B.D.H.S.C., Messrs. Highstead, Hill, Jones, Kimsey, Smith and Tagg.

CONTRACTS AND TRADE-UNION LABOUR.—The district auditor of the Southwark Borough Council has decided to surcharge the members of the rating committee £293 9s. 6d. for not considering or accepting a contract from a firm which had struck out from the tender form that it was prepared to undertake to employ trade union labour in all departments (*C. & D.*, August 5, p. 191). The auditor, disregarding questions as to whether it was contended that the contractor was bound to employ trade-union men in all departments and to dismiss those not belonging to a trade union (as in the printing trade one man alone in each department belonging to a trade union was sufficient to meet the difficulty), decided that he must surcharge the rating committee, as it had not submitted the lowest tender to the Council for approval or disapproval.

MEDICAL ACT AND FRAUD CASE.—At Wimbledon Police Court, on August 8, James Allport, Encliff, St. George's Road, Cheltenham, described as a pathologist, was fined £20, under the Medical Act, 1858, and amending Acts, for pretending to be a general medical practitioner. He was also sentenced to three months' imprisonment on charges which included obtaining unlawfully a kit bag and seven surgical instruments, valued at £22 10s., the property of Arnold and Sons, Giltspur Street, London,

E.C. Lilian Edes, clerk with Messrs. Arnold and Sons, stated that the accused filled in an application-form for work, wrote what she took to be "Yes" to the question, "Are you registered?" and gave his qualification as L.R.C.P. Dr. Thomas Sweetnam gave evidence of engaging him as a *locum tenens*, and two panel patients of Dr. Sweetnam stated that the accused examined and prescribed for them, signing the prescriptions "J. Allport, L.R.C.P."

IN THE COURTS.—At Hartlepool Police Court, on August 2, Marthieu G. B. Groth, chemist and druggist, High Street, was summoned for assaulting Reginald Dees, general dealer. After the evidence had been heard the Bench retired, and eventually the summons was withdrawn, a cross-summons that had been issued being also withdrawn.—At Greenwich Police Court, London, on August 5, Frederick Minson, motor-engineer, was sentenced to three months' hard labour for feloniously consuming electricity value £5, the property of the United Glass Bottle Manufacturers, Ltd.—At Holbeach, recently, George J. Webb, a man out of work, was committed for trial on a charge of breaking the shop-window of Mr. Charles Wass, chemist and druggist, High Street, the damage amounting to £25.—At Guildford, on August 9, Philip E. Harfleet (14) was bound over for twelve months on a charge of breaking into the shop of Mr. William Massey, chemist and druggist, High Street, by whom he was employed as temporary errand-boy, and stealing the sum of £12. The money was not recovered.

Irish News

Brevities

McDowell's Drug Store, Albert Bridge Road, Belfast, is now in course of reconstruction.

The North Irish Pharmacists' Association contemplates holding a series of lectures open to the public during the coming winter session.

Trade conditions in the North of Ireland are approaching normal, and, considering the general depression, business is by no means bad.

Mr. H. E. Young, Ph.C., Londonderry, has promoted a guessing competition. The empty spoons of the films developed on the premises during July are on view in the window, and prizes are offered to the three persons who estimate the correct or nearest number. The competition is proving a great attraction.

Scottish News

Brevities

The bowling section of the Glasgow Pharmacy Club will play the next rink game on St. Vincent bowling green on August 15.

Ex-Bailie Alexander Spence, chemist and druggist, Leslie, has received a letter from Linlithgow Town Council thanking him, as representing the donors, for the Waldie memorial cup (*C. & D.*, July 1, p. 3).

Some difficulty is experienced in obtaining certain patent and proprietary medicines, two or three of an article being forwarded when the order was for a dozen. Invoices are frequently marked "Awaiting supplies, kindly re-order."

Edinburgh

Photographic materials are selling even better than in former years is the experience of a local chemist. There have been several inquiries for "Californian bees" of late.

Many chemists find that their weighing-machines earn more money during July and August than in any other two months of the year. "Compare your weight before and after the holidays" reads a card displayed at one establishment.

Food Standards

THE current report (No. 250) of the Medical Officer of Health for the City of London gives an interesting table showing results of the analytical examination of fifteen varieties of coffee essence and extract (with and without chieory). Dr. Howarth comments as follows:—

Of these 15, seven were found to contain salicylic acid in varying amounts, and the observation was confirmed in the four duplicate samples. In one case sulphur dioxide was present. The amount of salicylic acid varied from 1.05 to 7 gr. per pound, and the sample in which sulphur dioxide was present contained 10.5 gr. of this preservative to the pound. Salicylic acid is used in medicine, particularly in the treatment of acute rheumatism. In food products I regard its presence as particularly objectionable, and the Departmental Committee appointed in 1901 to enquire into the use of preservatives and colouring matters in the preservation and colouring of food gave careful attention to the subject and reported to the effect: "That salicylic acid be not used in greater proportion than one grain per pint in liquid food and one grain per pound in solid foods. Its presence in all cases to be declared." It is generally argued that in the proportions present in foods and drinks the probable amount of the preservative taken in the food consumed at any meal would not in general be harmful. "Probably this is a correct statement, but if any particular food is permitted to be dosed with either salicylic acid or other preservative unless it can be shown that it is in such food there is no reason why the same preservative should not be used in other foods. The result of such a concession would be that instead of a single small dose being received from a particular food small doses from a variety of foods would result and the aggregate amount of the product consumed might result in harmful consequences to many persons. More particularly would this be the case if such product had a cumulative tendency. Is salicylic acid necessary in coffee extracts or essences? I am of opinion that it is not, and this opinion is supported by the fact that seven samples did not contain it. The addition of salicylic acid enables the manufacturer using it to dispense with certain refinements in the manufacturing process which are of importance in relation to the keeping qualities; that is to say, he can afford to be a little less careful in the final sterilisation of his products and containers. No preservative should be permitted to enable this to be done. It appears to me to be a somewhat unfair trade competition for one manufacturer to carry out these processes to the required length at some cost, whilst the other relieves himself of doing so by the use of this comparatively inexpensive addition. Before the war, I believe, salicylic acid was practically never used, but owing to the difficulties which developed in that unfortunate period the raw products available were not all of the same degree of purity as those in use either before or at the present time. These difficulties do not exist to-day, and in my opinion manufacturers of coffee extract should be required to prepare their products for sale without preserving them with the use of what is, in my opinion, a most objectionable drug. Somewhat comparable observations refer to the presence of sulphur preservatives in these products. Dr Howarth suggests that after January 1, 1923, coffee essence and extract should be compulsorily free from salicylic acid.

Another question dealt with at some length in the report is the varying composition of condensed milk. The results of analyses of twenty samples are given, showing, *inter alia*, that the lowest percentage of fat in sweetened whole milk was 6.45 and the highest 9.35. The Medical Officer, after pointing out that the Admiralty, the War Office and the Board of Trade have their own standard for condensed milk, suggests:—

That it is desirable that the sale of condensed milk, whether sweetened or unsweetened, should be controlled by the establishment of a definite official standard. That the requirement of 9 per cent. of milk fat is reasonable, and that the percentage of solids not fat and of sugar should also be considered; and further, that the conditions regulating the sale of skimmed milk should be altered to the extent of requiring that the label should bear in letters prominently displayed in a contrasting colour a statement to the effect that the tin contains skimmed milk and that such milk is not fit for the food of infants.

This suggestion has since been presented to the Court of Common Council and forwarded to the Ministry of Health and the Ministry of Agriculture and Fisheries, together with a request that the standardisation of packed cream should be considered.

Legal Reports

Arsenical Borax Case.—At Lambeth Police Court, London, on August 3, the stipendiary magistrate gave his decision in the case in which Mr. Frederick W. Callam, chemist and druggist, Peckham Park Road, was summoned for having sold borax which contained 50 parts of arsenic per million (*C. & D.*, August 5, p. 194). The magistrate said he had two points to determine—first, whether the article was sold to the prejudice of the purchaser, and, secondly, whether it was or was not of the nature, substance and quality demanded. The case had been heard at very great length, and to some extent it depended upon facts to be gathered from the memories of those who were present when the purchase was made. There appeared to be several kinds of borax, and it was quite clear that the borax demanded was not demanded in the terms of the British Pharmacopoeia. He had to determine whether the article asked for was "best borax" or "borax." He thought the person who could remember best was the person who served it. The defendant was quite clear that he was never asked for "best borax." The label on the portion submitted to the public analyst was only marked "Borax." In the circumstances he came to the conclusion that the defendant sold an article of the nature, substance and quality asked for, and that the natural substance which had not been eliminated was so infinitely small that it was scarcely worth considering. The summons would be dismissed, and the Camberwell Borough Council would have to pay the defendant £5 5s. costs.

Contract Dispute.—In the Court of Appeal, recently, Lords Justices Bankes, Warrington and Atkin heard an appeal from the judgment of Mr. Justice Greer in the case of Charles Weis and Co., Ltd., v. Peters, Rushton and Co., affirming the award by an umpire in favour of the buyers. The arbitration arose out of a contract of February 16, 1920, by which the defendants sold to the plaintiffs 80 tons of linseed oil at £91 10s. a ton, to be delivered during April. The contract contained provisions as to notice of destination being given by the buyers and the time within which the oil should be delivered after the receipt of notice of destination. The umpire had found that the date up to which the sellers were entitled to deliver was May 7. The point was whether the buyers by a letter of May 5 repudiated the contract. The umpire had found that this letter did not amount to repudiation. Mr. Stuart Bevan, K.C., for the appellants, said that on May 5 the buyers wrote to the sellers closing the contract at £110 per ton and claiming the difference in price, viz., £1,516 12s. After such a letter it was idle to tender the goods, and his submission was that the letter concluded the matter. Mr. Van den Berg supported the decision of the learned judge, contending that the letter of May 5, closing the contract, did not amount to a repudiation, and that the buyers had not precluded themselves from recovering damages in respect of breach of contract. Even if the letter amounted to a repudiation there had been no acceptance by the sellers. The Court, in allowing the appeal, with costs, held that on the correspondence which had passed the sellers were under no obligation to tender the oil after receipt of the letter of May 5, and that the buyers in closing the contract on that date had precluded themselves from recovering.

Lime Juice Prosecution.—At Old Street Police Court, London, recently, George Veasey, grocer, etc., 408 Bethnal Green Road, E. 2, was summoned, under Section 6 of the Sale of Food and Drugs Act, 1875, for having sold to the prejudice of the purchaser lime juice cordial adulterated with salicylic acid. Mr. Walter Frampton, barrister, who appeared for the defence (instructed by Neve, Beck, Son & Co.), remarked, at the outset, that Bethnal Green was welcome to try what had already been decided, and pointed out that the prosecution had chosen to take its test under a section of the Act which evaded the main issue—i.e., whether the article sold was injurious. Had the proceedings been taken under Section 3, that point would have been material. Mr. Margetts, for the prosecution, said he chose to proceed under Section 6 of the Act. It might be contended that the cordial sold was an ordinary commercial article, but the prosecution would contend that there was no need to have salicylic acid in it at all. Evidence of purchase of Southwell's lime juice cordial having been

iven, Mr. A. W. Stokes, F.I.C., public analyst, deposed to finding in the sample submitted to him 0.23 per cent. of salicylic acid. In his opinion, it was not necessary for such a preparation to contain salicylic acid: if added, the maximum should be 4 gr. to the pint. The recommendations of the Royal Commission of 1901 were familiar to him. Cross-examined: He believed that, if sterilised, the juice cordial made without any preservative would keep for ten days after opening—in summer, perhaps half that time. Sir William Smith, M.D., public analyst for Woolwich, stated in evidence that he had found many samples on the market wholly free from salicylic acid. He could not give the names of the manufacturers off-hand. The effects of this acid on health was not very well defined. He was aware that it had an effect on the alimentary canal, and later, if continued, on the heart and kidneys. It was not a poison. He could not tell off-hand the Pharmacopœia dose of salicylic acid. The magistrate said he thought the matter had been threshed out by the Royal Commission, which had recommended the inclusion of this acid. Unless there was evidence that the acid was injurious to health there was no case. He dismissed the summons, with £5 5s. costs against the Bethnal Green Borough Council.

Bankruptcy Reports

Re F. Ford & Co. (Louis Jules Fort, trading as), Bush Lane House, Cannon Street, E.C., chemical and oil merchants.—The affairs of this debtor came before Mr. Reginald Francke on August 8 at the London Bankruptcy Court in relation to his public examination. The receiving order was made on May 30 upon the petition of creditors, the debtor attributing his insolvency to the failure of contracting parties to carry out their part of contracts and to depreciation in foreign exchange. He owes £1,500 to unsecured creditors and £13,975 to the Swiss Bank Corporation for an overdraft, against which he holds goods and currencies to the value of about £2,000. The assets are valued at about £300. Mr. Ernest Parke, Official Receiver, reported that the debtor had not yet filed the statement of his affairs, although on June 9 the Official Receiver appointed a firm of accountants to assist in its preparation. His Honour made an order for the statement to be lodged in fourteen days, and adjourned the public examination until November 22.

Re Daniel William Mason, Mason's Cash Drug Stores, 175, Parc Road, Cwmparc, Glamorganshire.—The public examination of this debtor was held on July 18, at Pontypridd. According to the statement of affairs, there was a deficiency of £628 6s. 11d. Debtor attributed his failure to depression in trade and the slump in prices. Questioned by the Official Receiver, debtor stated that he was not a fully qualified chemist—he had only passed his preliminary examination. He filed his petition in June last owing to pressure by creditors. Prior to starting business in August, 1914, at Glynecorwg, he was a chemist's assistant. He then commenced as a drug stores proprietor with about £150 capital of his own, borrowing at the same time £40 from his mother, which was afterwards repaid. The business was successful, but in July, 1916, he joined the forces and had to dispose of his stock by private treaty, which resulted in a loss of about £250. In April, 1913, with £30 grant from the Civil Liabilities and £30 gratuity, he recommenced business at his present address. He had subsequently borrowed further sums from his mother to enable him to buy stock. He was successful until 1921, when as a result of depression in trade he had to borrow again to enable him to meet his creditors. His business fell away owing to the coal-trade stoppages. After further questions the examination was closed.

Deed of Arrangement

Bowness, William John, Thorne's Lane, Wakefield, chemist.—Dated July 25; filed July 31. Liabilities unsecured, £638; estimated net assets, £125. Trustee: P. S. Booth, 2 Bixteth Street, Liverpool.

New Companies and Company News

P.C. means Private Company and R.O. Registered Office

WILLIAM DEMPSTER & SON, LTD. (P.C.).—Capital, £4,000. Objects: To carry on the business of miners, explorers, metallurgists, manufacturers of chemicals, engineers, etc. R.O.: 17 Cooper Street, Manchester.

EDWARD JACKSON'S LABORATORIES, LTD. (P.C.).—Capital, £100. Objects: To acquire interests in inventions relating to any chemical compound or other substance for the treatment of the tubes of motor cars, motor lorries, bicycles, etc. R.O.: 44 Bedford Row, London, W.C.1.

ALBERT'S DENTAL SURGERIES, LTD. (P.C.).—Capital, £3,500. Objects: To acquire the business of practitioners in dentistry carried on at 30 The Walk, Norwich, as "Albert's Dental Surgery." A. C. Taylor, "The Plantation," Costessey, is the first managing director. R.O.: 30 The Walk, Norwich.

EDWARD ALLEN & CO., LTD. (P.C.).—Capital, £1,000. Objects: To carry on the business of wholesale and retail dealers in chemicals, oils, optical, photographic, electric, chemical and scientific instruments, and of distillers, druggists, drysalts, oil and colourmen, etc. R.O.: 9-10 Fenchurch Street, London, E.C.3.

PAUL BUSS, LTD. (P.C.).—Capital, £500. Objects: To carry on the business of dental merchants, selling agents, and manufacturers of dental goods of all kinds, etc. The first directors are: K. L. Whalley, 69, High Street, Chorlton-on-Medlock, Manchester, and W. E. Stewart, 80, Delamere Road, Levenshulme, Manchester. R.O.: 38, King Street, Manchester.

GILMOUR TEMPLETON CO., LTD. (P.C.).—Capital, £100. Objects: To carry on the business of manufacturers, buyers and sellers of and dealers in all kinds of medicines and medical preparations and drugs, chemists, druggists, chemical manufacturers and dealers, manufacturers of pharmaceutical, medicinal and toilet preparations, etc. Solicitors: Peter Thomas and Clark, 1 Bush Lane, Cannon Street, London, E.C.

V. A. PICERNO, LTD. (183,553) (P.C.).—Capital, £5,000. Objects: To adopt an agreement with V. Picerno, and to carry on the business of chemical and drug merchants, referred to therein. The first directors are: V. Picerno, Calle Bombasseri 5074, Venice, Italy; A. W. Arscott, 26 Thornsett Road, Anerley, S.E.24; D. Albagli, 138 Engadine Street, Southfields, S.W.18. R.O.: 92 Falcon Road, Battersea, London, S.W.

VETERINARY MEDICINES CO., LTD. (P.C.).—Capital, £500. Objects: To acquire the business carried on by A. J. Payne at Oxford and Eynsham, and to carry on the business of manufacturers and vendors of medicines, and medical and surgical appliances for veterinary purposes, and for use by human beings. The permanent directors are: H. A. L. and H. Donkin, Lloyds Bank Chambers, Oxford, and A. J. Payne, Mill Street, Eynsham, Oxon. R.O.: 7 St. Aldgate's Street, Oxford.

SYDNEY E. WHITE, LTD. (P.C.).—Capital, £500. Objects: To take over the chemists' business carried on as "W. H. Clement, chemist and druggist," at Pease-down St. John, Somersetshire, and to carry on the business of chemists, druggists, opticians, wine merchants, patent medicine vendors, etc. The first directors are: S. E. White, 12 Raby Street, Wolverhampton, and A. J. Weaver, M.B.E., J.P., 12 Raby Street, Wolverhampton. R.O.: Pease-down St. John, near Bath.

ASSOCIATED PRODUCTS, LTD. (P.C.).—Capital, £3,000. Objects: To adopt agreements (1) with H. Osborn and (2) with H. S. Bragg and to carry on the business of manufacturing chemists and druggists, manufacturers, importers and exporters of and dealers in preparations for toilet, domestic and household use, perfumes, toilet requisites, etc. The directors are: H. S. Bragg, 82 Hamilton Road, Reading, manufacturers' agent; H. Osborn, "Ellesmere," Castlebar Park, Ealing, W.5, manufacturing chemist. Solicitors: J. E. Lickfold & Sons, 17 Bedford Row, London, W.C.

Examination Experiences

I

Now that it is all over, perhaps *C. & D.* readers may be interested to hear my impressions of the well-known examination. For months past the vision of the Minor has been an ascending star on the horizon; and it was with no little regret that I saw it vanish. The object could not be attained without much hard work, and the hours spent in study have at last brought their reward.

The eventful morning arrived for practical work, and I set out for Bloomsbury Square with mixed feelings of hope and depression, intensified by considerable inward agitation. I should very much like to know the general impression created in the minds of the examiners when they view the trembling specimens of humanity which come before them for jurisdiction. Personally, I find consolation in the fact that, except for the accident of sex, they were in the same boat as I, once upon a time! I think I voice the opinion of most of the candidates in saying that we soon found the examiners to be real live human beings, and all that could be desired.

Having been allotted to my place in the pharmacy-room, I started to work. It took half an hour or more for the effects of the atmosphere of the examination-room to wear off, and then I soon made headway. The paper consisted of five straightforward prescriptions, requiring average skill for their execution—a mixture, lotion, pill, B.P. suppository, and liq. strych. There was a steady flow of criticism from the examiner meted out to each candidate. I suppose that was part of the proceedings! The second ordeal began in the afternoon with chemistry. I had a solution of a nickel salt to examine and to take its specific gravity. The volumetric was a silver-nitrate titration, which involved making the necessary decinormal solution.

It was with considerable eagerness that I awaited the verdict two days later. I discovered that there was yet another day of judgment. So I devoted every available hour of the interval to my books. It was worth it in the end. The oral examination was a trying ordeal, but the examiners were most considerate, and evidently accustomed to displays of that peculiar human idiosyncrasy called nervousness. A word of warning here to prospective candidates! If you have a sound knowledge of your subjects, you may expect mercy at the hands of the examiners; otherwise, their judgment will be harsh. They are true Britishers, and admit no one into the realms of pharmacy without a passport.

At the conclusion of the morning's proceedings I awaited my fate. It came in the form of congratulations from the President on my success, which I only fully realised on receiving the certificate at his hands later in the day. Now I am free to enjoy a good holiday without any overhanging clouds. But there is the Major ahead!

Mascot. (218/18.)

II.

The author of the following "Experience" relates that, after spending four years in the Army, waiting for his grant, and suffering from other handicaps (including lack of apparatus, specimens, and teachers), he arrived at Galen Place in a state of mind far from enviable. He thus summarises the questions asked:

PRACTICAL CHEMISTRY.—This was the first subject in the morning. My salt proved to contain potassium, zinc, a carbonate, and a nitrate. The volumetric was to estimate the proportion of HI in the sample given. Pure AgNO_3 and approximately $N/10$ NH_4CNS provided. I prepared $N/10$ AgNO_3 , and then got very excited; but a few kindly words from an examiner calmed me down. I estimated the strength of the given NH_4CNS and did a back titration.

CHEMISTRY AND PHYSICS.—Before being sent to the examiner I had spent an hour and twenty minutes on the "funking form." The first question in physics was, "What is meant by boiling-point?" This led on to vapour pressure, Charles's law, Boyle's law, law of gravitation, and Graham's law. In chemistry the examiner started with zinc—occurrence, preparation of metal, impurities, purification. Then phosphorus—preparation, chlorides, oxides and their action on water. Preparation

of meta-, ortho- and pyro-phosphoric acids and their formulas. Then acetone—preparation, properties; aldehyde—preparation, properties. Differences between aldehydes and ketones, and the oxidation products of each. Reaction of cane- and grape-sugar to Fehling's solution.

BOTANY.—After another long wait came botany. I was shown a transverse section of a dicotyledonous root. How did I know it was a dicotyledonous root? Position of protoxylem in stem and root? Uses of xylem and phloem? A poppy capsule to describe. Differences between *Papaveraceae* and *Ranunculaceae*? A shoot of *N.O. Leguminosae* to describe. The presence of tendrils led to an interesting discussion on the modifications of leaves for performing special functions, carbon assimilation and the necessity of light and chlorophyll.

PHARMACY.—I started off by having some badly written prescriptions to read. The preparation of the B.P. waters? Strength of aq. chlorof.? Aq. camph.? Aq. menth. pip.? The preparation of thyroid gland? The examiner seemed very pleased when I quoted the B.P. words to him. Ingredients of tr. cinchonae co.? Preparation of tr. cinchonae? Ext. cinchonae liq.? Assay? Had I done it? What is Meyer's reagent? Then a long string of doses—mostly of potent drugs. I had to explain the use of a filter pump and a nitrometer.

MATERIA MEDICA.—Aloes shown. Which variety? I could not say, but described the colour reactions with HNO_3 , which satisfied the examiner. Then ginger—*N.O.*, botanical name, habitat, and constituents. Two varieties of aconite shown. How assayed? I had some difficulty in recognising a sample of belladonna-root, and, when I did, had to give distinguishing features. Alkaloids of belladonna and their assay. Then Indian hemp to recognise. What is it? I started "It is the dried, flowering and fruiting—" but the examiner smiled and said we would go on to Poison Law. This included some questions on the cocaine regulations, and a list of twenty-five or thirty poisons to put into their proper schedules.

DISPENSING.—(1) Prepare 50 mils glyc. ac. tannic. and add 0.75 per cent. phenol.

(2) Ferri et ammon. cit.	...	gr. v.
Liq. arsenicalis	...	℥v.
Glycerini	...	℥xxx.
Spt. chlorof.	...	℥v.
Inf. gent. co. ad	...	℥ss.

M. ft. mist. Mitte 5viij.

Capiat coch. mag. t.d. ex aq.

(3) Zinc. ox.	...	24 per cent.
P. amyli	...	20 "
Ac. salicyl.	...	2 "
Paraf. moll.	...	49 "
Ammon. ichthyol.	...	5 "

Send 5ij.

Label: "The paste to be applied night and morning."

(4) Hydrarg. subchlor. ... gr. 1/10th

Ft. pil. Mitte viij.

Sig.: i. 4tis horis.

(5) Spread a blister 1 in. by 1½ in.

I massed the pills with manna. My dispensing was done well within time; everything was to hand that was required. Finally, I must add that every examiner was most fair, did not hurry me, and did all in his power to make me feel at ease.

GALEN II. (31/3.)

LUXEMBURG AND DANGEROUS DRUGS.—In accordance with the terms of the Hague Opium Convention, a Dangerous Drugs Law has now been passed by the Parliament of the Grand Duchy, and the regulations giving effect to its provisions have been issued by the Grand Duchess as a special decree. Persons wishing to import, or export, opium, morphine, heroin, cocaine, their preparations and salts, except those containing less than 0.2 per cent. of morphine, or 0.1 per cent. of cocaine or heroin, must obtain a special permission from the Director General of Health of the Grand Duchy. No person, other than pharmacists owning a business open to the public, medical practitioners and veterinary surgeons entitled to keep a dispensary, is permitted to hold, or to offer any of these drugs, or their preparations, except by special licence of the Director-General of Health.

Presentation to Mr. G. D. Beggs

PRIOR to the monthly meeting of the Council of the Pharmaceutical Society of Ireland, on August 8, the members assembled at 67 Lower Mount Street, Dublin, for the purpose of presenting an address and a miniature replica of the presidential badge of the Society to Mr. G. D. Beggs, J.P., a member of the Council, and until recently treasurer of the Society, on the occasion of his departure to take up his residence in London.

Dr. A. J. Barnes, President, was in the chair, and the following members of the Council were also present: Dr. J. A. Walsh, Messrs. D. M. Watson (treasurer), G. D. Beggs, J.P., J. E. Connor, Wm. J. Hardy, A. H. Oliphant, G. A. McLean Lee, S. Suffern, Fred. Storey, J. Carroll Culbert, Andrew Wilson, and John Smith.

The President said he believed it was a very long time since the members of the Council had assembled in that room in the month of August. He knew it was a difficult time for most of them to leave their business, owing to the shortage of staff due to the holiday season. They were met under what he might term a mixture of sad and happy auspices—sad, because they were losing one of the oldest and staunchest supporters of their Society, Mr. G. D. Beggs, who was now leaving Ireland to take up residence in London; happy, because they



Mr. G. D. Beggs, J.P.

were afforded an opportunity before his departure of expressing in some little way the esteem in which they held him and would always hold him. Mr. Beggs had been a member of the Council for thirty-seven years, and was a past-President of the Society. But to the younger generation of pharmacists he was probably best known as the Society's treasurer, an office which he had just vacated after a tenure of no less than nineteen years. He (the President) well remembered, when attending the Society's annual meeting as an outsider, he was always forcibly struck by the ease with which Mr. Beggs handled the Society's finances and by the lucid way in which he presented the annual statement of accounts. His familiar figure and voice would be greatly missed on the first Monday in October in future years. Later on, when he (the President) joined the Council, he was necessarily brought into close contact with Mr. Beggs, and it was then that his real sterling worth was revealed to him. He could not help but admire his very regular attendance, not only at the Council meetings, but at the various committee meetings, the keenness of his interest in the business to be transacted, and his ever-anxious concern for the welfare of the Society and its licentiates. In this connection he would like to mention one point which, he thought, had been very generally overlooked. Mr. Beggs retired from business some four or five years ago, but instead of

resigning his seat on the Council he still kept on with them and gave freely his time, energy, and experience. For this thoughtfulness alone Mr. Beggs deserved their warmest thanks. When Mr. Beggs was in the Presidential chair he was told that their various meetings lasted about half their usual time under his chairmanship. It was characteristic of Mr. Beggs to do things well and expeditiously. But Mr. Beggs' activities had not been confined to official pharmacy only. He had been a well-known public man in his own district. He was a county magistrate, and apart from his duties on the Bench he had found time to be a member of his Urban District Council, a body of which he was afterwards chairman. He felt sure that many of the striking improvements in the charming township of Dalkey were in no small measure due to Mr. Beggs' energies on that board. In the realm of commerce Mr. Beggs had been equally prominent. After some years in the wholesale drug trade, he opened a pharmacy on his own account in Dalkey, and quickly built up one of the most successful businesses in the Dublin district. His shop was one of the finest pharmacies he (the President) had ever been in, reflecting to his eye in every detail the characteristic thoroughness of its proprietor. Any man having such a splendid record as Mr. Beggs must necessarily be possessed of personal qualities which endeared him to his fellow-citizens. No set of citizens in Mr. Beggs' case were better aware of this than his fellow-members of Council. Turning to Mr. Beggs, the President continued: It is for that reason, Mr. Beggs, that we have asked you to come here to-day. We wish to assure you of our very high appreciation of all that you have done for the Pharmaceutical Society and its members. As a very small token of that appreciation we ask you to accept this address, together with a miniature replica of the Society's presidential badge. We ask you to accept them with our warmest thanks for your past services and with our sincere wishes for a long and happy future in your new sphere. We trust that as you look upon these two mementoes they will recall to you many happy memories of your connection with Irish pharmacy. (Applause.)

Mr. SMITH, as one of the oldest members of the Council, wished to associate himself with all that the President had said in regard to Mr. Beggs. He had certainly been one of the most loyal supporters of pharmacy in Ireland; and he was sure they all felt deeply his severance from the Council. They wished Mr. Beggs long life and happiness in his future home.

Dr. WALSH said that owing to the resignation of Mr. Beggs, of Mr. Wells, and Mr. Tate, he had become the member of the Council who was now longest on that body. He remembered Mr. Beggs' presidency, and he quite endorsed what the President had told them with regard to the excellent manner in which Mr. Beggs had always conducted the meetings of the Council. They had listened year after year to Mr. Beggs' exposition of the finances of the Society; he always reduced everything to a nutshell and presented the accounts in such a way that everybody could grasp the details. During the course of his pharmaceutical career it had been his pleasure to be with Mr. Beggs at several of the British Pharmaceutical Conferences on the other side of the Channel; and, great a favourite as Mr. Beggs was in Ireland, he would almost say that he was a greater favourite in Great Britain if that were possible. He and Mrs. Beggs were always a centre of attraction with the English and Scottish members of the conferences. He joined in wishing Mr. Beggs many happy days in England.

Mr. CONNOR associated himself with what had been said with regard to Mr. Beggs. He was sure that he and Mrs. Beggs carried with them to London their very best wishes.

Mr. HARDY also expressed his appreciation of the services of Mr. Beggs to the Council and to the Society as a whole. He thought their Society had been happily blessed in having had such a treasurer as Mr. Beggs.

Mr. LEE said that as one of the more recent members of the Council he would like to associate himself with the sentiments expressed with regard to Mr. Beggs. As one of the auditors of the Society for the past few years

he had come into close contact with Mr. Beggs at least once a year, and he had always found him most courteous and willing to give the auditors any explanation they might require, and his books were always in absolute order.

MR. STOREY, speaking as a member of the Druggist Section of the Pharmaceutical Society, said they regretted very much indeed that Mr. Beggs had given up the treasurership of the Society, and was leaving them. The Druggist Section appreciated his work to the full.

MR. BEGGS, in acknowledging the presentation, said the words of the President and his colleagues overwhelmed him. Beautiful as the badge was, it was small indeed in his estimation compared with the appreciative words which had fallen from them regarding his services to the Society. What he had done was a labour of love, for he was a pharmacist to his finger-tips. He looked upon pharmacy as an honourable profession, and he never allowed one iota to interfere with true pharmacy in his establishment. He often smiled when he saw the windows of members of the profession crammed with articles that did not belong to pharmacy, and he said to them: "When are you going to have a cheap sale?" He considered that they had quite enough to do if they did it well, to stick to pharmacy, pure and simple. If they did so they could build up a nice prosperous business. He had hoped that his name might have been on the Council longer. He had brought up his son in his own business. But he flew high, and is now a qualified medical man, and had done with pharmacy. He had worked always for the benefit of the licentiates, and had attended the Council and Committee meetings as regularly as he could. During all the years he had been associated with the Council he did not think he could bring to his mind one harsh or angry word used to any member of the Society. He thought their Society was unique in that respect. He did not know of any other body in which all worked so harmoniously together. Long might it be so. He would religiously treasure the address and badge, and he hoped that at some future time he would come to the Council as a visitor. He thanked them again for the great honour they had done him. (Applause.)

The address to Mr. Beggs was beautifully illuminated and handsomely framed; and the replica of the presidential badge was beautifully worked in gold and enamel and enclosed in a suitable case.

Westminster Wisdom

By the "C. & D." Parliamentary Representative

PARLIAMENT ADJOURNS

The House of Commons, on August 4, adjourned until November 14.

SPRAY DISINFECTION

Sir Walter de Frece asked the Minister of Health, on August 3, whether his attention has been called to the denunciation, at the recent meeting of the Royal Sanitary Institute at Bournemouth, of the spray form of disinfectant; whether this view is held by his sanitary advisers, and whether the views of his advisers, whatever they are, are available for public guidance on this point.

The Minister of Health replied that his attention has been called to Press reports of the statement referred to. The opinion of his advisers on the point is expressed in the Memorandum on Prevention of Influenza, issued by the Local Government Board in 1919, which states that the practice of spraying halls and places of public resort with a disinfectant fluid is of doubtful utility, and only tends to create a false sense of security.

AN HISTORIC PHARMACY.—On June 19 the well-known Elephant Apoteket in Christiania celebrated the 250th anniversary of its foundation, having been opened in 1672. From its foundation it has had nine owners; since 1917 it has belonged to Herr Carl Emil Sverre, who has issued a small work describing the history of his pharmacy during the two and a half centuries of its existence. To celebrate the event, Herr Sverre contributed 5,000 kr. to the pharmaceutical benefit fund, and a sum of 10,000 kr. to the Christiania Museum.

Summer Outings

A Day in Durham

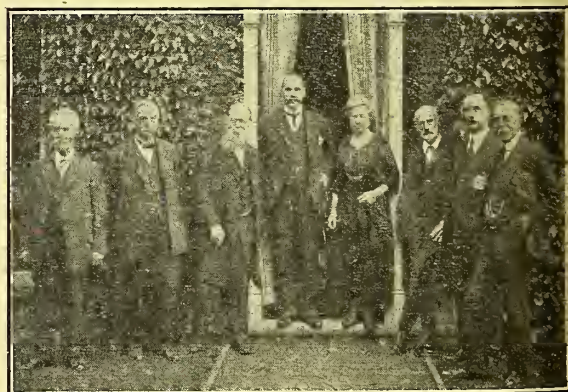
For their annual outing, which took place on August 3, the employees of Scott & Turner, Ltd., to the number of over 400, travelled by charabancs and motor buses from Newcastle-on-Tyne to Durham. After luncheon, served in the Town Hall, sports were held on the football ground. Miss Dorothy Scott distributed prizes to successful competitors; after the presentation, Mr. W. H. Scott, managing director, referred to the record which the sales of Andrews Liver Salt had established, and expressed his gratification that they were increasing week by week. He thanked the employees for the way in which they had "stuck in" during the particularly busy period. Replying on behalf of the employees, Mr. S. Rickard thanked the directors for providing such an enjoyable day's outing, and referred to the good feeling which existed between the company and all employed by them.

Wolverhampton Chemists' Excursion

The annual excursion of the Wolverhampton and District Chemists' Association was held on August 3, when about 30 members and friends journeyed by charabanc and motor car to Milford, a picturesque village on the outskirts of Cannock Chase. Here they were joined by the President of the Staffordshire Pharmacists' Association (Mr. Foyke) and by Mr. and Mrs. Wood, Stafford. Owing to the showery state of the weather there was no inducement to hurry over tea, provided at the Barley Mow Hotel, and afterwards the President (Mr. J. H. Coleman) welcomed the visitors, and expressed his best wishes for the continued success of the Association. Mr. F. J. Gibson expressed the sentiments of the company in an appreciation of the long-continued services of Mr. Coleman, first as secretary and since as President of the Association. Rambling was possible during the evening, most of the party visiting the romantic Sherbrooke Valley.

Newbery Veterans.

Recently Mr. Francis R. Newbery, of Francis Newbery and Sons, Ltd., Charterhouse Square, London, E.C.1, invited the veterans of the company's staff to his house, "Northaw," South Croydon. Six of the ten who were invited were able to accept the invitation and a pleasant



From Left to Right: Mr. John Welch, Mr. J. N. Gregora, Mr. Edward Pickering, Mr. and Mrs. Francis R. Newbery, Mr. Fred. Pickering, Mr. Wm. Garrod, Mr. Henry Allum.

day was spent, a visit to the Croydon Aerodrome being a prelude to tea and dinner at Mr. Newbery's house. The combined ages of the six veterans shown in the photograph is 450 years. The outing and kind thought of Mr. and Mrs. Newbery were much appreciated by the guests.

MR. E. H. EDWARDS, on behalf of Yardley & Co., Ltd., and Mr. J. Kell, who represents A. & F. Pears, Ltd., and other well-known manufacturers, are "on the road" through Rhodesia.

Birth

SMITH HOUGHTON.—At Barkly West, South Africa, on July 11, the wife of G. Smith Houghton, chemist and druggist, of a daughter.

Marriages

DANCE—HARRISON.—At the Highbury Quadrant Congregational Church, London, N. 5, on August 3, by the Rev. Allen S. Blackmore, Edward Herbert Dance, M.A., R.Hist.S., Nottingham, to Ida, only daughter of Mr. W. Harrison, chemist and druggist (Young & Harrison, chemists, London, N.).

GEE—THOMSON.—At Edinburgh, on July 26, by the Rev. Bell Nicoll, Harry Leonard Gee, only son of Mr. T. H. Gee, chemist and druggist, Chapeltown Road, Leeds, to Helen Hendry, only daughter of Mr. Thomson, 9 Murieson Crescent, Edinburgh.

GRAHAM—ANDERSON.—At Edinburgh, on August 1, by the Rev. R. H. Fisher, D.D., Robert Bruce Graham, I.P.S., 6A Montagu Terrace, Inverleith Row (late of P. Gilmour, Ltd., chemists, Glasgow), to Edith Mary Anderson, M.P.S., eldest daughter of Mr. Anderson (formerly of Elgin).

HEATON—WAIDE.—At Rothwell Wesleyan Chapel, on August 3, Rev. Wallace J. Heaton, B.A., Romsey, to May Isobel (Madge) Waide, seventh daughter of Mr. Thomas Waide, Applegarth House, Woodlesford (Thomas Waide & Sons, chemists' printers, Leeds).

PHILLIPS—ANDREW.—At St. Peter's Church, Plymouth, on August 1, by the Rev. J. C. L. Johnstone, B.A., vicar of Egg Buckland, Norman Keable Phillips, M.P.S., eldest son of Mr. A. J. Phillips, Bournemouth, to Winifred Jane Andrew, only daughter of the late Mr. Z. Andrew, Bridgewater and Plymouth.

WAIDE—AUDSLEY.—At Oxford Place Wesleyan Chapel, Leeds, on August 5, William Ferguson Waide, eldest son of Mr. Thomas Waide, Applegarth House, Woodlesford (Thomas Waide & Sons, chemists' printers, Leeds), to Florence May Newton Audsley, younger daughter of the late Mr. Harry Audsley, Woodlesford.

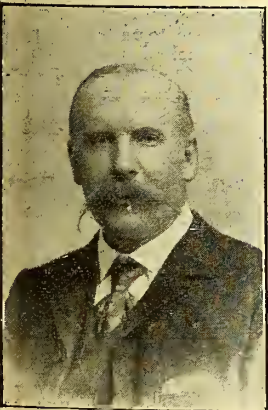
Deaths

BERMAN.—At Blackpool, on August 5, after much suffering, Mr. Alfred Berman, senior partner of A. Berman & Sons; druggists' sundriesmen, 28 Chapel Street, Salford, Manchester, aged sixty.

CONWAY.—At Byfleet, on August 5, Mr. T. Devas Conway, a director of Stevenson & Howell, Ltd., manufacturing chemists, 95A Southwark Street, London, E.E. 1, aged fifty-four.

MAGER.—At Queenstown, Cape Province, on August 4, Mr. William Kelk Mager, chemist and druggist, managing director of Mager & March, Ltd., wholesale and retail chemists. Mr. Mager was born in Hampshire in 1849. He served his apprenticeship at Horncastle, qualifying in 1873. Seven years later he took over the business at Queenstown, with which he remained associated till the end: it was founded more than half a century ago, and was converted into a limited company in 1919. For nearly twenty-six years Mr. Mager was a member of the Pharmacy Board of Cape Province, and at his retirement from that office in 1920 a resolution

expressing its appreciation of his long and faithful service was passed by the board.



MR. W. K. MAGER

Wills

MR. CHARLES HENRY CHESTER, chemist and druggist, 18, Station Road, Ainsdale, who died on June 12, left estate of the gross value of £3,028 2s. 6d., with net personalty £2,530 7s. 2d. Probate of his will has been granted to George Alfred Patrick, 8, Church Green, Ramsey, Hunts.

MR. JAMES ROBERT KIRK, Ph.C., 257 Hunslet Road, Leeds, who died on April 20, intestate and a widower, left estate of the gross value of £3,306 7s. 8d., of which £3,091 3s. 11d. is net personalty. Administration of his property has been granted to his son, James Thos. Robert Kirk.

Personalities

MR. R. LORD GIFFORD, J.P., Ph.C., Blackburn, has presented a quantity of pipes for distribution among the inmates of the local union.

GIFTS of soap have been made by Lord Leverhulme and Sir Woolmer White, Bt. (chairman of Timothy White Co., Ltd., chemists and merchants, Portsmouth), to the inhabitants of Tristan da Cunha.

THE friends of Mr. John Williams, South Wales representative of Evans Sons Lescher & Webb, Ltd., will regret to learn of the death of his eldest son in Australia. Mr. Williams, jun., had recently gone there for the sake of his health.

MR. P. J. WIGGINTON (Arthur H. Cox & Co., Ltd.) is laid aside, his friends will regret to learn, in a Brighton nursing home, following an operation on the right eye. Mr. Wigginton, however, reports himself as convalescent, and hopes shortly to be back in harness.

MR. G. T. FRANCIS, chemist and druggist, 3 Tregarvon Road, North Side, Clapham Common, London, S.W. 11, has been appointed London representative for Stone & Ballantine, Ltd., 13 Well Court, Queen Street, London, E.C. 4, agents for Sal Hepatica and Ipana tooth-paste.

Insurance Act Dispensing

Record of matters concerning Chemists' interests in the National Health Insurance Acts

Reports from Local Centres

ENGLAND

Weston-super-Mare.—At a meeting of the Somerset Insurance Committee, on July 29, it was reported that a letter of protest had been received from the Pharmaceutical Committee and also fifteen insurance chemists against the reduction of 1d. in the dispensing-fees, and that a copy of such letters had been forwarded to the Ministry of Health. The number of prescriptions issued during the quarter ended March 31 was 49,824, the average cost being 11.92d., the cost during the corresponding period in 1921 averaging 10.97d.

SCOTLAND

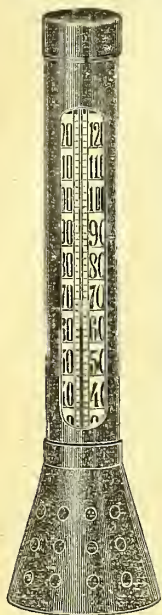
Galashiels.—At a recent meeting of the Insurance Committee, a discussion took place on the question of quality of drugs and appliances supplied to insured persons. The Committee were of opinion that, apart from the unrestricted use of proprietary medicines in private practice, there were no differences between the drugs supplied to insured and uninsured persons. It was decided to recommend, however, that certain appliances, specified in the tariff, should be of better quality.

SYNTHETIC CAMPHOR.—The Norwegian Director of the Civil Medical Board has addressed a circular to pharmacists and druggists to the effect that synthetic camphor is now competing seriously with Japanese camphor. With regard to its use for medicinal purposes, the professors of pharmacology consider it advisable to use only natural Japanese camphor for such purposes. Pharmacists and druggists are advised to exert the utmost care in purchasing supplies of camphor.

Trade Notes

ANNUAL HOLIDAY.—Robert Bailey & Son, Ltd., surgical-dressings manufacturers, Marriott Street, Stockport, inform us that their works will be closed for the annual holiday from Saturday, August 12, until Tuesday morning, August 22.

JOHNSON'S PHOTOGRAPHIC THERMOMETER.—Johnson & Sons, Manufacturing Chemists, Ltd., 23, Cross Street, Finsbury, London, E.C.2, send us one of their Azol and Vedol Thermometers especially designed for use in photography in regulating the temperature of developers. The illustration shows the kind of instrument, the outer case being of black celluloid enclosing a delicate thermometer. The bulb of the thermometer nearly touches the bottom of the case, so that it does not need a large bulk of developer for temperature-testing purposes. The importance of temperature in developer is recognised by most photographers, and is an especially important factor in case of time developing. The instrument, which retails at 3s. 6d., can also be employed for taking the temperature of the dark-room.



"GRIPS" COMPETITION.—J. W. Lightbown & Co., proprietors of "Grips" First-aid Pastilles (Agents: Thos. Christy & Co., 4-12 Old Swan Lane, London, E.C.4), are holding a window-display competition, for which £200 in cash prizes is offered. The competitors are required to make displays of "Grips" pastilles between November 1 and December 2, each display must be of not less than five days duration and must include one full Saturday. The competitors are required to send photographs of the window-display, and by these the competition will be judged. The first prize is £50. Applications for entry forms are to be made to the "Grips" Competition Department, Commercial Advertising Service, Ltd., 54 Corporation Street, Manchester.

EDUCATIONAL INSTITUTIONS.—The following is a list of the educational institutions advertising in this issue:

Bath and West of England College of Chemistry and Pharmacy.
 Battersea Polytechnic.
 Birmingham and Midland College of Chemistry, Pharmacy, and Botany.
 Birmingham Municipal Technical School.
 Brighton Technical College.
 British Optical Institute, Ltd.
 Cardiff Technical College.
 Chelsea Polytechnic.
 City of London College.
 College of Preceptors
 Elt's College.
 Exeter University College.
 Heriot-Watt College.
 Leeds Technical School.
 Liverpool School of Pharmacy.
 London College of Chemistry, Pharmacy, and Botany.
 London Hospital Medical College and Dental School.
 Manchester School of Pharmacy.
 Nottingham University College.
 Royal Veterinary College.
 School of Optics, Ltd.
 C. A. Scurr.
 South of England School of Pharmacy.
 Spectaclemakers' Company.
 Sunderland Technical College.
 University College Hospital Dental School.
 University of Bristol.
 University of Durham College of Medicine.
 University of Manchester School of Pharmacy.
 Westminster College of Pharmacy.

Dangerous Drugs Act, 1920

The following notice appeared in the "London Gazette," August 4:—

Notice is hereby given under the Rules Publication Act, 1893, that it is proposed by the Secretary of State for the Home Department, after the expiration of at least forty days from this date, in pursuance of the powers conferred upon him by the Dangerous Drugs Act, 1920 (10 & 11 Geo. V. Ch. 46), to issue regulations amending the regulations made on the 20th May, 1921, under Sections 3 and 7 of the above-named Act. Draft copies of the said regulations can be obtained on application to the Under-Secretary of State, Home Office, London, S.W. 1.

The Draft Regulations

The Draft Regulations referred to are as follows:—

Regulations, dated the , 1922, made by the Secretary of State under Section 3 of the Dangerous Drugs Act, 1920 (10 & 11 Geo. V., c. 46), for controlling and restricting the possession, sale and distribution of raw opium.

In pursuance of Section 3 of the Dangerous Drugs Act, 1920, I hereby make the following Regulations amending the Regulations made under that Section on the 20th May, 1921 (S.R. & O., 1921, No. 864), hereinafter referred to as the Principal Regulations:—

1. Regulation 3 of the Principal Regulations shall be amended and shall take effect as if the words, "or attempt to obtain possession of," were inserted after the phrase, "No person shall be in possession of."

2. The registers required to be kept in pursuance of the Principal Regulations shall be preserved for not less than two years from the date of the last entry in the register.

3. These Regulations may be referred to as the Raw Opium Regulations, 1922, and the Principal Regulations may be referred to as the Raw Opium Regulations, 1921.

Regulations, dated the , 1922, made by the Secretary of State under Section 7 of the Dangerous Drugs Act, 1920 (10 & 11 Geo. V., c. 46), for controlling the manufacture, sale, possession and distribution of dangerous drugs.

In pursuance of Section 7 of the Dangerous Drugs Act, 1920, I hereby make the following Regulations amending the Regulations made under that Section on the 20th May, 1921 (S.R. & O., 1921, No. 855), hereinafter referred to as the Principal Regulations:—

1. Regulation 5 of the Principal Regulations shall be amended and shall take effect as if at the end of the first paragraph were inserted the sentence, "The prescription shall not be given for the use of the prescriber himself."

2. Regulation 7 of the Principal Regulations shall be amended and shall take effect as if the words, "or attempt to obtain possession of," were inserted after the words, "No person shall be in possession of."

3. Prescriptions, records, registers, or other documents required to be retained or kept in pursuance of the Principal Regulations or of any Order made under those Regulations shall be preserved for not less than two years from the date of the prescription or document or the last entry in the record or register, as the case may be.

4. These Regulations may be referred to as the Dangerous Drugs Regulations, 1922, and the Principal Regulations may be referred to as the Dangerous Drugs Regulations, 1921.

Information Department

INFORMATION WANTED

E/108. Bisulphide (or 'phate) of sodium soap (for T.N.T. poison)	A/38. Prof. Newton Harvey's "Luciferin"
S/288. "Cremloid" disinfectant	M/98. MacQueen's Account Book
A/317. Cupargian Suppos.	R/38. Neroli Powder
R/38. Fomica Balm	G/317. "Pedicure" and "Sivan" Corn Planes
B/98. Iodormone (injection for rheumatism)	

INFORMATION SUPPLIED

Cokay nerve tonic, M/257	Sanogyl, R/48
"Dip-a-dip" bottle capping, L/48	Thomson's Vaccines, M/277
D'Jerkis Perfumery, M/48	Torbet Lactic Oats, S/28
Hamoboloids, B/317	Wilkinson's sarsaparilla.
Otis Tablets, B/28	Waterproof cardboard containers, I/287
Rebman's Tegmine, M/18	Wireless receiving sets, S/48
"Red Poppy" Corn Silk, S/48	Young & Hodgson's bottles, L/48

Observations and Reflections

By Xrayser II.

The More I Study

Professor Greenish's address to the recent Conference, the more formidable appears the outlook for the pharmaceutical student. We have been assured over and over again that the contemplated changes in our examinations will not make qualification more difficult than it is, yet here we have the Dean of the School proposing what is practically a new subject (for the definition he gives of pharmacognosy far transcends anything hitherto demanded of us), and one which affects but a single department of study, a department not by any means of the first importance. Some botanical knowledge is no doubt advantageous to a pharmacist, but not very much is required to enable us to judge the quality of the drugs we deal in nowadays. If other subjects are being revised in the same spirit the future candidate for qualification will have his work cut out for him with a vengeance. It is at least significant that while we are being assured that the changes in the Qualifying examination are mainly designed to make it more practical, all the addresses we get from those who may be presumed to be in the confidence of the Council tend in the other direction, being devoted to subjects that have little direct connection with our work. We are constantly being reminded of the increased demands made upon us by the advances of science, but these very advances make it impossible, and I may say unnecessary for us to satisfy such demands as our professors seem inclined to make. A general acquaintance with the results of the researches of the specialists in different subjects is all that can reasonably be expected of us. Ostensibly, this is all Professor Greenish asks from business men, but in effect he goes much further. If we possess the general knowledge of the half-dozen subjects he names as a necessary preliminary to the study of pharmacognosy I venture to think we may be content with a very "general" knowledge of that subject too.

The Object of its Founders,

said Professor Greenish, in concluding his address, was to raise the Pharmaceutical Society to the rank of a learned body, and for a long time its Council strove zealously for this end, though "of recent years this policy has receded into the background," having been defeated by the short-sighted niggardliness of the rank and file. I have known the Society for over sixty years, and must confess that this appears to me somewhat of a fancy picture. I do not question what he said of the founders, and possibly it is true that for some time their ideal persisted, but what is meant by "recent years" I cannot conceive. But leaving the question as to the time when this change of policy took place, another question of greater importance arises: What would the Society have been now if its original intention had been fulfilled? One thing, at least, is certain; it would never have had half its present membership. While that intention held the Society was a small body, numerically almost negligible in comparison with the trade at large. And another thing is highly probable, namely, that members of the Society would not only have been vastly out-numbered by non-members practising pharmacy, but would by comparison with them have suffered a degree of genteel poverty such as the majority of the chemists and druggists of to-day have either never known or have escaped from.

The Leanest Years

of the trade, as I remember it, were those in which it affected to despise trade, as such. We owe the comparative prosperity we now enjoy, not to the triumph of the professional spirit (for, as Professor Greenish admits, this has "receded into the background"), but to its partial eclipse. As your correspondent "Square Utensil" says, we do not even live, much less flourish, on pure pharmacy. Personally I wish we did; I have much more natural sympathy with Professor Greenish's views than with those of the pushing store-keeper, but they won't keep me. The most I can do is to "hitch my wagon to a star" with a very long cable; I daren't leave it and play Icarus, because I know my wings would fail me. They have helped a little at times to carry me over boggy places, but at

best they are only adjuncts to a very mundane progress. Professor Greenish is mistaken in supposing it is the difference between a one- and a two-guinea subscription that lead to the abandonment of the old policy. It was rather the practical demonstration of the fact that the policy was mistaken. I paid my guinea cheerfully enough (it was never more after I qualified), in spite of the fact that I was never admitted to membership, though all my neighbours in the trade, not one of whom had ever been in the examination room, were; but my quarrel with the Society was that it made it not worth my assistants' while to qualify, and without qualification I could not legally leave them to manage for me, even for an hour.

The Conference Meeting

at Nottingham, if the only report of it were the one made by Mr. Neathercoat to the Council and the discussion that followed, would seem to have been, except on its social side, only moderately successful. Mr. Neathercoat twice used the term, "a considerable success," which sounds like damning it with faint praise, and Mr. Keith complained of the quality of the papers read, as well as of their small number. I share his regret that there was no practice section. One of your correspondents speaks of the unpractical character, so far as working pharmacists are concerned, of some of the papers, and criticises one of them rather severely. There seems to have been some difficulty in securing suitable papers, and the conclusion is natural that the shadow of the coming change may have caused it. I am glad that Nottingham itself is declared to have done its part nobly from every point of view. The debate at the closing session has been privately described to me as the finest comedy ever witnessed—a comedy of errors, I cannot but think it, and that, I am sure, is my informant's opinion too.

Mr. Rutherford Hill's Speech,

I am told by a friend who heard it, very greatly influenced the voting. It was a good speech from Mr. Hill's point of view, but judging from the reports, I should not have classed it with the speeches that make history. It would have had on me exactly the opposite effect to that intended by the speaker, for this is what it amounted to: "You are asked to vote on this question, but however you vote it is already decided. You may not like the change; I don't; but we have no option. Let us acquiesce since we can't help it: consolidation and unity should be the order of the day." To my mind this is adding insult to injury, and my attitude (had I been there) would have been that of the poet of the "bloody but unbowed" head. "No!" I should have said, "you can inflict these changes upon us, but don't ask us to welcome them; don't make us appear responsible for a policy we would repudiate if we could." Mr. Hill, however, though his whole speech was a condemnation of the policy, carried his audience with him when he announced his acceptance of it. This is, I presume, another instance of the power of personality: it is the man behind the words that counts. "Consolidation" and "unity" are words only, and are worth no more than we choose to put into them; in themselves they are worth nothing at all.

The Social Events

were evidently the brightest spots in the proceedings, but this is nothing unusual; indeed, it would be fairly safe to say that without its social side the Conference would not have lasted so long as it has done. I wonder whether any of the Dovedale trippers thought of the use to which Charles Cotton, the poet referred to in Mr. Cecil Owen's article, more than once, according to tradition, put the caves and holes that abound in that neighbourhood—that of hiding-places from his creditors. Time was when many chemists would have been glad of such places of retreat at a convenient distance, but things have improved with us, at least financially. That Cotton really found the caves useful seems clear from one of his poems—"The Retirement"—in which the speaks of

"Belovéd caves! from dog-star heats,
And hotter persecution safe retreats."

The indoor recreations of the Conference rather whet one's curiosity in such cursory notices as I have seen of them.

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PHARMACISTS.

Pharmaceutical Examinations

PROFESSOR GREENISH made the relation of pharmacognosy to the Pharmaceutical curriculum, the subject of his address at the recent British Pharmaceutical Conference. To anyone able to read between the lines, the address presented some division between teachers of pharmacy and those called upon to lay down the requirements for the examinations. It will be remembered Sir David Prain last year, at the opening

the Session of the School of Pharmacy of the Pharmaceutical Society, enunciated the principle that a student should pass through his pupilage before beginning his scientific studies. Professor Greenish would appear to support this view which, if adopted, makes of no effect the division of examination into two parts or, entails two academic years since it is generally admitted by all those competent to judge, that the syllabus of the pharmaceutical examinations is a much too complex affair for one academic year. It may be suggested that it is taken in one year now, but there be who can be satisfied with the present examinations or the results. There is one other point which should be brought out in considering this question. The Pharmaceutical Society have had the power to impose a curriculum since 1908, but it was not until the Fisher Education Act was passed that it was thought possible to impose it. The necessary regulations were made, but the curriculum became of no effect, since many of the things suggested in that educational Act have been suspended or become a dead letter. The Council of the Pharmaceutical Society thought that, owing to the Education Act, students would remain at school until the age of 18, when these students would, perhaps, receive the science portion common to most callings and, having provided an adequate foundation, the student would be enabled to take full advantage of his particular technical training. It was surmised that the science portion would take of the nature of general education, and the subsequent training would adequately conform to the theory advocated by Sir David Prain of training in the craft and "polishing" at the colleges. It would be no answer to say that some of the knowledge of chemistry, botany and physics, would be lost by the same argument would apply to all scholastic training. The failures in the pharmaceutical examinations cannot generally be put down to deficient early training, but to the inability of boys and girls to retain what they are taught. After all, it matters not so much what are the details of chemistry, botany and physics, but whether the study has inculcated the right method, and taught the pupil to observe. Of all that has been said, the Pharmaceutical Council is committed to the method (1) general education; (2) specific instruction; (3) pupilage; (4) technical training for qualification. On the surface, this appears sound, but the Council has been unable to advance, owing to the large number of service students causing congestion and producing doubts as to the best course to adopt. A curriculum was put forward covering a much wider field, and according to the teachers, mandating a completeness of training which no school could give by any other method than cramming for examination purposes. Three times in succession this curriculum has been postponed, so that any student who registered in January, 1920, is quite uncertain what his examination will be if he enters for the one beginning in December, 1923, and no definite information appears to be forthcoming. The further question to be considered is whether the ideal, as set out in the science portion, being taken on leaving school, is a practical one. Professor Greenish certainly appears to be on the side of those who think it is not, and we are immediately brought up against the question or advisability of a continuance of the examination in its present form. This is not helpful. It is difficult to give exact figures of examiners and assesses, since no accurate analysis exists. Moreover, the complexity of reference back, and passing in other subjects, makes it impossible to know the exact position, and all we have to work on is the number qualifying. Thus in July, 624 entered for the whole examination, including Part II., and their preferred portion in the first part, and 300 were successful in Part I., but only 123 went through Part II. and reached the Register. To say the least, there is something wrong either with the examiners or the examinations, or we are trying to cram too much into the minds of the candidates for pharmacy, which is merely surface knowledge and is never

digested. That being so, the time is ripe for the changes so long spoken about. The imposition of the curriculum, as at present suggested, is, however, a different matter. The hours specified are 1,140 for technical studies, which teachers appear unanimously to consider cannot be done in an academic year, and to this is added 4,000 hours in a shop or approved institution. We hear complaints from many teaching centres that it is an impossible task which is set, and if the present system, in its modified form, can only give the result specified above, what will be the result when the fuller syllabus is in force? We hear also many complaints about the examinations, and while giving full allowance for the abnormal psychic state of those who complain, we cannot get away from the fact which one examiner deplored, that after an oral examination, the examiners never met to compare notes and consider whether, on balance, a candidate weak in a non-vital subject should not be favourably considered. We understand a modification of the present curriculum is being considered, in addition, there will be strong advocacy of as much of the examination being written as possible. We claim also that the curriculum hours should be brought within reasonable dimensions. A further point we make is that some of the extraneous matter should be deleted. There are some portions of chemistry in the syllabus in which, if an examiner took liberties, would probably lead to the undoing of nearly all the candidates. The syllabus is too long and vaguely suggestive of too great a scope in the organic section. Radical changes are needed in botany and in regard to physics, its present, or even its suggested, form needs revision, and pharmacognosy should be able to occupy its true and practical position. This can be done if chemistry is treated on a rational basis, many of the unwanted details eliminated, and the syllabus brought into harmony with what is needed in everyday pharmacy, that is the "open shop." The Major examination offers ample scope for development, the changes are long overdue, and through this channel, our scientifically inclined young men can pass to the comparatively few positions which await them in industry.

Helping Students

THE resuscitation of the Fairchild Scholarship and prizes scheme is one of the interesting announcements we have to make in this issue. It will be remembered that we mentioned recently that Mr. Herbert Skinner, Ph. C., member of the Council of the Pharmaceutical Society, had accepted the position of secretary, and he has lost no time in bringing the scheme into line with present day requirements. It may be recalled that Fairchild Brothers & Foster, of New York, who have extensive business relations with this country, established in 1904 a scheme of scholarships and prizes for pharmaceutical students as a graceful acknowledgment of the friendly relations which have subsisted for many years between the firm and the chemists of Great Britain and Ireland. A Committee of trustees was appointed, these, in 1917, when the scheme was discontinued owing to the war, consisting of Mr. Peter Boa, Ph. C., Edinburgh; Mr. Albert Hagon, Cardiff; Mr. William Kirkby, M.Sc., Ph. C., Manchester; Mr. A. J. Phillips, Ph. C., London; and Mr. W. F. Wells, Ph.C., Dublin. Mr. A. E. Holden, Ph.C., was secretary to the Committee, and he carried out the duties until his lamented death in 1917. The Committee of trustees is unaltered in the resuscitated scheme, and Mr. Skinner has undertaken the duties of secretary. As Mr. Skinner is an indomitable altruist, we are confident that the benefits which Messrs. Fairchild Brothers & Foster intend to confer on the pharmaceutical students of this country are in good hands. It will be remembered that after the examination in 1916, the student who had won the Scholarship was called to the Colours and unable to take up the award. It was

realized also that male apprentices, who would probably be applicants for the Scholarship and prizes in the next year, would be in the Army, and the trustees decided that it would not be possible to hold the examination in 1917. In view of the system of Government grants to ex-Service men, which was instituted on the conclusion of the war, it is probable that the candidates for the Scholarship and prizes will all be apprentices who were not of military age at the time of the Armistice. From an advance copy of the syllabus for 1923, we find that on account of the circumstance we have referred to, there are comparatively few alterations in the conditions. The change in the requirements for the Qualifying Examination, as regards registration of apprentices or students of pharmacy, was foreseen in the primary conditions upon which the Scholarship is granted. Candidates were required to have been duly registered with the Pharmaceutical Society as "apprentices or students" not later than April of the year in which the examination for the Scholarship was held. This registration is now carried through before apprenticeship. The prizes, which are given to the next best student to the one who wins the Scholarship, are in the nature of consolation awards, one of the objects being to furnish sufficient for a winter's course of evening science classes, books and apparatus, and if such students do not exceed the age limit of twenty-two years, they may compete for the £50 Scholarship a second time. As it is some time since the scheme was in operation, we repeat the information as to the subjects of examination, as given in the syllabus sent out by Messrs. Fairchild Brothers and Foster:—

ELEMENTARY CHEMISTRY.

The examination for 1923 will be confined to questions in regard to the preparation and properties of the elementary gases, Hydrogen, Oxygen, Chlorine and Nitrogen, with their best-known compounds, and the mineral acids of the British Pharmacopoeia. Elementary questions will also be set on the fundamental principles of Chemistry.

ELEMENTARY MATERIA MEDICA.

The questions will be confined to the animal and vegetable drugs of the British Pharmacopoeia. Candidates will be expected to know the scientific names of animals or plants yielding such drugs, their natural orders, habitats, and the parts used in medicine. The information will be found chiefly in the British Pharmacopoeia and in the Materia Medica table contained in Squire's "Companion." The questions will, as far as possible, be confined to drugs which apprentices and assistants are accustomed to handle frequently, so as to bring out the knowledge acquired by their own observation.

PRACTICAL PHARMACY, AND PRESCRIPTION READING.

In this department candidates will be asked questions in regard to the preparation of British Pharmacopoeia dilute acids, decoctions, infusions, liniments, ointments, pills and suppositories; and they will be expected to know something about the methods by which the soluble or active constituents of drugs are extracted by means of official menstrua, as in preparing liquid extracts and tinctures. Candidates will be tested as to their ability to translate Latin prescriptions into English, and should be familiar with both the Imperial and Metric systems of weights and measures.

ELEMENTARY BUSINESS KNOWLEDGE.

Candidates will be examined as to the special conditions under which certain articles kept by chemists and druggists can be sold, but the questions will not involve further knowledge of the laws than is usually imparted by employers to their apprentices and assistants. Candidates will be expected to have an elementary knowledge of general business principles as applied to the drug-trade.

As we have stated on previous occasions, the addition of elementary business knowledge to the examination subjects is a feature of the scheme, and emphasises the fact that the promoters have in view the fitting of students to the needs of the business of pharmacy. From 1905 to 1916, there have been twelve Fairchild scholars and forty-three prizemen, and in looking through the list, we note that a good proportion of these students have in after life fully justified the hopes of success which were anticipated from their work

at the examinations. The next examination will be held at five centres—London, Manchester, Edinburgh, Cardiff and Dublin—in 1923, and candidates must be not less than twenty years of age on July 1st, 1923, or more than twenty-three on January 1st, 1923. Candidates who desire to sit for the next examination are required to give notice in writing not later than June 1st, 1923, to the Secretary of the Fairchild Scholarship and Prizes, Albert Chambers, 64-65, Holborn Viaduct, London, E.C., from whom can be obtained copies of the syllabus, which gives full conditions and subjects of the examination. We hope that the scheme will continue to act as an incentive to the young men in pharmacy, and so carry out the liberal minded policy of the founders.

Dangerous Drugs in Egypt

A ROYAL Decree has been issued in Egypt prohibiting the importation, and also the exportation, except to holders of a licence granted by the Minister of the Interior, of raw and medicinal opium and its preparations, morphine and other alkaloids of opium (excepting codeine), their salts and derivatives, as well as preparations containing over 0.2 per cent. of morphine, heroin and its salts and preparations containing over 0.2 per cent. of heroin, cocaine and its salts, also coca leaves and fruits and all preparations containing over 0.1 per cent. of cocaine, Cannabis indica and all its preparations in whatever form. Persons who have hitherto enjoyed the right to pass through the Customs the above-mentioned substances will now be required to obtain a licence. The Ministers of the Interior and of Finance are empowered to add to this list any other poisonous substance the importation of which may be deemed detrimental to public security and morality. In conjunction with the above Royal Decree, regulations have been issued by the Minister of the Interior to give effect to these provisions. A special authorisation will be required in each single instance of importing or exporting any of the drugs coming within the scope of the above Decree. The applicant will be required to state the nature of the drug or preparation and quantities to be imported or exported, as well as the reasons or professional or business requirements necessitating the importation or exportation of the narcotics in question. The licence will be granted by the administration of public health, the latter being empowered to refuse the licence if thought fit, and also to reduce the amounts indicated in the application for a licence if the amounts to be imported or exported are regarded as too large. A duplicate of the licence can on application be granted for the use of the importer or exporter in dealing with countries requiring the production of such a licence. The licence to deal wholesale in the above specified dangerous drugs will be granted only for a period of one year. The "Bulletin Pharmaceutique d'Egypte" welcomes the introduction of these regulations, but points out that no penalties are provided for transgressions against these provisions; further, attention is drawn to the fact that it is not so much the smuggling into the country of such drugs that calls for suppression, but the illicit supply of these poisons to the "poor irresponsible devils of drug addicts" by retailers who act as their purveyors. In this connection mention is made of the proposal advanced in Great Britain to inflict "the cat" upon persistent offenders.

Gazette

PARTNERSHIPS DISSOLVED

CORNWELL, T. C., and SHAW, H. C., 14, Piccadilly, Hanley, Stafford, chemists.

SANGUINETTI, F., and HARDING, C. T., 120, Uxbridge Road, and 4, Castle Hill Parade, Ealing, chemists, under the style of Sanguinetti & Harding.

Educational Information

Pharmacy

GREAT BRITAIN

THE subjects and scope of the pharmaceutical examinations for the coming academic year are the same as in 1921-22. At the same time we ought to mention that the changes contemplated in 1920 and included in the official syllabus are expected to be in operation for the examinations in January 1924. For those students who have entered or are entering for the academic course beginning in October we outline the syllabus which will govern the course of their studies, but for those beginning pharmacy there is a strong probability of simplification and change which should make progressive study easier and do away with the system that leaves everything for the collegiate course. A note of warning should be given on the official syllabus, as at present issued, in relation to the newcomer into pharmacy. We understand that the Education Committee has been going through the whole syllabus, and some drastic changes are suggested. The question of hours of study has been raised, on the ground that they are impossible, and the syllabus objected to on the ground that it cannot be covered. It is admitted by those most competent to know that there is a good foundation for these objections, and the arrangement as foreshadowed in the present syllabus may be modified. Thus it is expected that such portions as may be comprised in written papers will be so treated, and only such work as the practical shall be taken as at present. This will be a great gain for the nervous student who often fails completely in the oral portion. Moreover, chemistry is a subject where greater freedom of reference books should be allowed, as the B.P. in dispensing, and, as this is likely to be conceded, we should find chemistry a more satisfactory examination. The present arrangement of the syllabus and the examinations leaves much to be desired, and the Pharmaceutical Society appears to be conscious of this, since it has sent out its suggested syllabus to all the schools and colleges, asking the principals to consider and make any suggestions for improvement or modification. Meantime we repeat our note of warning in botany, which was not made any too soon. This subject has displaced chemistry in the list of those "referred" failures in

the examinations. A thorough study of botany should mean the open air, and as such ought to prove attractive to young men. The difficulty is that the syllabus is archaic, which makes the need greater for the display of botanical specimens rather than diagrams to aid the town student to become acquainted with actual forms of plants. The failures in chemistry are fewer, and it would appear that systematic study is beginning to tell. But a danger arises from the devotion to practical work obscuring theory, with the result that candidates show a general weakness in chemical knowledge, while still

being able to perform the chemical operations required. In physics the failures are few, but the requirements at present are small. It would, however, appear that the chemistry side is considerably weakened by the deficiency in physics, which is almost as much the fault of the syllabus as the candidate. The second part of the examination shows that in materia medica the proportion of referred men is still too high for a subject so easily studied. It is in pharmacy, however, that most of the candidates come down. Many students complain they are able to do little practical pharmacy work until they come to college. This is unfortunate, and those who take apprenticeships should make it a *sine qua non* to see that as much

practical work as possible is done in the pharmacy by the apprentice. When we say practical work, we not only mean a few galenicals, but also more of the preparation of such things seen in prescriptions as pills, cachets, plasters, suppositories, etc., as many candidates show the evidence of too little practice, and it is much more creditable to an employer to know his apprentices have made good; therefore he should give, or even make, opportunities to achieve that end. Ability only comes by repetition of performance, and the examination syllabus is much too crowded to allow of great frequency in some of the operations. Chemists still take apprentices without having them previously registered with the Pharmaceutical Society, forgetting the change in the regulations and that the time spent in pharmacy does not count to the apprentice until registration is complete. In fairness to their apprentices, pharmacists should see that they register. The regulations are definite on this point, and they apply to all now entering pharmacy. The schools are not quite so full now, and evening

Chemist and Druggist Qualification

(IN BRIEF)

For those now entering Pharmacy.

[PROVISIONAL.]

1. Notification and Registration with the Pharmaceutical Society of having passed an approved Preliminary Examination.
2. Apprenticeship, during which provision should be made for attendance in approved technical institutions of 300 hours in Chemistry, 60 hours in Botany, 60 hours in Physics.
3. Take first part of Qualifying Examination in Chemistry, Botany and Physics.
4. Complete the necessary 4,000 hours' experience in an open shop or approved public institution, during which, or after, spend 600 hours in Pharmacy, 120 hours Materia Medica, in an approved school.
5. At the age of 21, or thereafter, second part of Qualifying Examination in Pharmacy, Materia Medica, Poisons Law.

classes not so crowded, so that the diligent student has a greater opportunity for personal contact with the teacher. The principals of educational institutions are always pleased to advise students. Failing expert advice, we recommend that good use be made in the pharmacy of the syllabus outlined in the following pages. By keeping constantly before him the lines of study the student should arrange his work to provide a thorough grounding in the fundamentals which are the basis of success.

Preliminary Examinations

The first step on deciding to take up pharmacy is to secure a certificate covering the following compulsory subjects: English, arithmetic, algebra, geometry, and two optional subjects, of which it is recommended that Latin should be one. These subjects must have been passed at not more than three examinations of the same examining authority. The Preliminary examination has seldom had sufficient attention paid to it; usually the easier the better, but this is a mistake. It is suggested that in future only those Preliminary examinations accepted by the Medical Council should be accepted by the Pharmaceutical Council. Whether this materialises or not, one thing is certain—that the more satisfactory the preliminary training the easier will the final qualification be obtained. The Registrar is empowered to accept certificates covering the six subjects, and with the proviso stated above, but any deviation from this may be considered by the Pharmaceutical Council on its merits.

LIST OF CERTIFICATES ACCEPTED

University of Oxford.—Junior or Senior Local Examinations. Higher Local Examinations. Responsions.

University of Cambridge.—Junior or Senior Local Examinations.

University of Durham.—School Certificate Examination. Higher Certificate Examination. Certificate of Proficiency Examination.

Universities of Manchester, Leeds, Liverpool, Sheffield, and Birmingham.—Joint Matriculation Examination. Junior School Examination. School Certificate Examination.

University of Bristol.—School Certificate Examination.

Universities of Edinburgh, Aberdeen, Glasgow, and St. Andrews.—Preliminary Examination in Arts, Medicine, or Science. Junior and Senior Local Examinations. Higher Local Examinations. Previous Examinations.

University of London.—Matriculation Examination. Higher School-leaving Certificate. Junior School Examination. Senior School Examination.

National University of Ireland.—Matriculation Examination.

University of Dublin.—Public Entrance Examinations. (For "High Places.")

Royal University of Ireland.—Matriculation Examination.

Royal University of Belfast.—Matriculation Examination.

Pharmaceutical Society of Ireland.—Preliminary Examination.

Scottish Education Department.—The Intermediate Certificate or Passes in the Higher or Lower Grade of the Leaving Certificate Examination.

Intermediate Education Board for Ireland.—Senior or Middle Grade Certificate Examination.

University of Wales.—Matriculation Examination.

Central Welsh Board.—Honours, Senior or Junior Certificate Examination.

Oxford and Cambridge Schools Examination.—Higher or Lower Certificate Examination.

Educational Institute of Scotland.—Medical Preliminary Examination. Professional Preliminary Examination.

College of Preceptors.—Senior or Junior Certificate Examination.

Army Council.—First-class Education Examination.

If a student has passed an entrance examination of any other body not referred to in the above list he should submit it to the secretary of the Pharmaceutical Society, 17 Bloomsbury Square, London, W.C. 1, as such cases are considered on their merits. If the student has not already passed one of the examinations mentioned above he should at once take steps to enter for a suitable examination. Favourite examinations for pharmacy students

are the junior certificate of the College of Preceptors, London, and the professional preliminary examination of the Educational Institute of Scotland. Of these we give particulars below, and refer students for fuller details to the syllabus of the various bodies or to Dodd's "Guide to Preliminary Examinations" (C. & D. Office, 3s. 6d., by post 3s. 11d.).

THE COLLEGE OF PRECEPTORS, Bloomsbury Square, London, W.C. 1, holds examinations for junior preliminary certificates at midsummer and Christmas at local centres, a list of which is issued two months before each examination. Entry forms, obtainable from the secretary of the College, must be filled up and returned six weeks before the day appointed for the examination. On the form the candidate indicates the subjects in which he desires to be examined, those required for pharmaceutical students being mentioned at the beginning of this section. The fees payable for junior candidates are 20s. and a local fee, the amount of which varies, but information as to the payment will be supplied two months before the examination. The fees are best sent with the entry forms, but, if not, must be paid twenty-eight days before the examination begins. Candidates should obtain the regulations for the examinations (post free) from the secretary of the College, as the books to be studied in some of the subjects vary from year to year. A complete set of papers at previous examinations can be obtained from the College at 2s. 3d., post free. Collected papers on each subject are obtainable from Mr. P. C. Bartlett, 27 Southampton Street, Strand, London, W.C. 2.

EDUCATIONAL INSTITUTE OF SCOTLAND (Registrar's Office, 47 Moray Place, Edinburgh) holds a preliminary examination for pharmaceutical students four times a year in Edinburgh, Glasgow, London, Liverpool, and Dublin. The fee is £1, and 10s. for any subsequent examination, and should be sent to the Registrar with the form of application duly filled in. Exemption can be claimed from subjects already passed on a Leaving certificate. The Institute issues a Calendar giving the regulations and examination papers, which can be obtained from the Registrar, price, by post, 2s.

A certificate of having passed a preliminary examination complying with the conditions having been obtained, it should be sent to the Registrar, the Pharmaceutical Society, 17 Bloomsbury Square, London, W.C. 1, accompanied by a fee of two guineas, the student being then registered as an "apprentice or student."

From this point the period of apprenticeship may be said to begin. The specified number of hours required to be spent in an open shop or approved public institution is 4,000. In addition, a course of study must be begun before any portion of the Qualifying examination can be taken.

The Qualifying Examination

The Board of Examiners sits in London and Edinburgh in January, April, July, and October for the purpose of conducting the statutory examinations; for the Major examination in April and July only. The Qualifying examination is in two parts, the first one including botany, chemistry, and physics, the second materia medica, pharmacy, dispensing, and poisons law.

Candidates who were registered as apprentices or students before December 31, 1919, are entitled to take the examination at one time. The fee payable is ten guineas, which should be sent to the Registrar, together with a certificate of birth showing the age of twenty-one has been reached, and a declaration, signed by a chemist whose name is on the Register of Chemists and Druggists, that three years have been spent in translating and dispensing prescriptions. The necessary forms can be obtained from the Registrar. The examination in all other respects is the same as for those registered after the date given above.

To those now entering pharmacy the Qualifying examination consists of two parts, as previously mentioned. The first part can be taken before the age of twenty-one, the second part only after that age has been reached.

The fee payable for the first part is six guineas, and the conditions are: The candidate must have spent the requisite number of hours in botany, chemistry, and physics in an institution approved for the purpose by the Pharmaceutical Council. If a candidate fails in one

subject and is referred by the examiner. he may be re-examined in that subject on the payment of the sum of three guineas. Failure in more than one or without reference back means re-examination in all, and the fee is the same.

Having passed each subject in Part I., and completed 4,000 hours, not less than two years, in an open shop or approved public institution and reached the age of twenty-one, the candidate should send a birth certificate, together with another fee of six guineas and the necessary declaration of having completed the conditions on the prescribed form, to the Registrar. The examination in Part II. is conducted on similar lines to Part I., and success in all subjects entitles the candidate to be registered as a chemist and druggist by examination.

The pharmaceutical-chemist qualification may be obtained at a subsequent examination. (See "Major Examination.")

All candidates have the choice of being examined in London or Edinburgh, and they are required to state the venue desired when filling up the entrance form.

EXAMINATION CHANGES

The changes we pointed out in our last Educational Number were further postponed by the Pharmaceutical council so as to come into operation in January 1924. It is stated that a new syllabus will be issued, incorporating all the experience gained during the present transition period in ample time for new entrants into pharmacy, probably about January 1923. The collation of reports from all the teaching institutions is now in progress, but what the final form of those changes will be it is difficult to say, owing to the divergence of teaching opinion.

The Examination Syllabus

The changes as at present agreed upon can best be shown by an examination of the official syllabus, which in each subject we follow with our own comments.

PART I

BOTANY.

(a) CLASSIFICATION. The main divisions of the vegetable kingdom and their most important characteristics: Thallophyta, Bryophyta, Pteridophyta, Phanerogamia. The following Sub-classes and Natural Orders of the Angiosperms: Thalamiflorae, Calyciflorae, Corolliflorae, Monochlamydeae, Petaloideae, Spadiciflorae and Glumiflorae; Ranunculaceae, Cruciferae, Rosaceae, Leguminosae, Umbelliferae, Compositae, Solanaceae, Liliaceae. The description of flowering plants in technical language.

The candidate is also required to recognise any of the plants in the following list:

List of Plants for Recognition.

Aconitum Napellus	Matricaria Chamomilla
Althaea officinalis	Mentha piperita
Anthemis nobilis	Mentha Pulegium
Atropa Belladonna	Mentha viridis
Avena sativa	Menyanthes trifoliata
Brassica alba	Ceanothe crocata
Brassica sinapioides	Papaver Rheas
Bryonia dioica	Papaver somniferum
Cochlearia Armoracia	Pinus sylvestris
Colchicum autumnale	Prunus Laurocerasus
Conium maculatum	Quercus Robur
Cytisus Scoparius	Rosa canina
Daphne Laureola	Rosmarinus officinalis
Daphne Mezereum	Ruta graveolens
Datura Stramonium	Salix alba
Digitalis purpurea	Sambucus nigra
Dryopteris Filix-mas	Solanum Dulcamara
Foeniculum capillaceum	Taraxacum officinale
Hordeum distichon	Taxus baccata
Hyoscyamus niger	Triticum vulgare
Juniperus communis	Ulmus campestris
Juniperus Sabina	Valeriana officinale
Lavandula vera	

(b) MORPHOLOGY, INCLUDING ANATOMY. The external form of plants: Thallus stem, root, leaves, inflorescence, flower, fruit. The distinguishing features and common modifications of these structures. Principles of branching and different kinds of branch systems. Phyllotaxis, including vernation. The different kinds of buds, and their arrangement on the stem. A general acquaintance with the elements of plant anatomy: the vegetable cell, tissues, e.g., meristematic, epidermal, fundamental, and vascular. The

characteristic anatomical features of roots, stems, and leaves of flowering plants and ferns. The candidate is expected to recognise, by means of the microscope, and describe sections illustrating the above plant structures. The method of increase in thickness of stems and roots, and the characters of primary and secondary tissues. The characters of the flowers. The methods of pollination, self- and cross-fertilisation. The formation of the seed and germination.

(c) PHYSIOLOGY. The elementary facts in connection with the physiology of plants, including the nature and source of the food of plants, and the manner in which the raw materials are elaborated. Chlorophyll, its manner of occurrence in the plant; its functions and the conditions under which it discharges them. Reserve materials, their nature, mode of deposition, and the manner in which they are utilised by the plant. The manner in which plants grow, and the conditions necessary for the growth of a plant. The manner in which plants respond to external stimuli—e.g., light, gravity, etc. Sexual and asexual reproduction.

This syllabus remains unchanged, but, from the conferences with teachers, it is certain that some modification and amplification will be introduced which, it is hoped, will harmonise the teaching of this subject with the requirements for the collateral examinations of other scientific bodies. Recent experience shows a heavy percentage of failures in botany, and from inquiries it appears to arise from a lamentable ignorance of practical acquaintance and a reliance merely on book work. The subject is essentially a practical one, and recognition of this should eliminate most of the failures.

CHEMISTRY.

An elementary knowledge is required of the following subjects:

(a) The chief characteristics of chemical action, the distinction of elements and compounds; the laws of chemical combination by weight and volume; The hypothesis of Avogadro; atomic weight and molecular weight; chemical formulas and nomenclature; valency; the distinction between metals and non-metals. (b) The general characters of the non-metals; the chief methods of preparation and the typical reactions of the following non-metallie elements and compounds: Hydrogen, oxygen, ozone, water, hydrogen peroxide, chlorine, bromine, and iodine, and their compounds with hydrogen and oxygen; fluorine, hydrofluoric acid, nitrogen, ammonia, the oxides of nitrogen, nitrous acid, nitric acid; sulphur, hydrogen sulphide, sulphurous and sulphuric anhydrides and acids, thio sulphuric acid; phosphorus, phosphine, the oxides and oxy-acids of phosphorus, the chlorides of phosphorus, silicon, silica, fluoride of silicon, silicofluoric acid; boron, boric acid. The usual impurities in such of the above-named substances as are included in the British Pharmacopœia. (c) The general characters and classification of the metals, and the general methods of forming oxides and salts; the sources, the usual methods of extracting and the chief properties of the under-mentioned metals, also the modes of preparation, properties, adulterations, and contaminations of their principal compounds: Potassium, sodium, ammonium, lithium, barium, strontium, calcium, magnesium, zinc, aluminium, iron, chromium, manganese, nickel, cobalt, arsenium, antimony, tin, copper, bismuth, lead, silver, mercury, gold, and platinum. (d) Carbon, its oxides, cyanogen, hydrocyanic acid, cyanides, ferrocyanides, and ferricyanides, oxalic acid. The chief methods of preparing methane, ethane, ethylene, acetylene, methyl and ethyl alcohols, formic and acetic aldehydes and acids, ethyl acetate, acetamide, olein, glycerol, benzene, phenol, nitro-benzene, aniline, benzoic acid, salicylic acid, hydrate of chloral, chloroform, iodoform, ether; the principal properties, reactions, and mutual relations of these compounds. The candidate will also be expected to possess a general knowledge of the methods of estimating carbon, hydrogen, oxygen, and nitrogen in organic compounds, and of obtaining molecular formulas.

Practical Examination.—To recognise by chemical tests the more important non-metallic elements and compounds, as well as the metals and salts indicated in the foregoing list; to detect the chief impurities in those that are included in the British Pharmacopœia; to recognise by their physical properties those which possess well-defined characteristics. To analyse a mixture containing not more than two metals and two acid radicals.

To identify by chemical tests the following organic compounds: Hydrocyanic acid, cyanides, ferrocyanides, ferricyanides, oxalates, acetates, tartrates, citrates, salicylates, starch, cane sugar, grape sugar, salicin, quinine, morphine, strychnine, and their salts; and to detect the impurities in such as are included in the British Pharmacopœia.

To perform those volumetric determinations which are described in the British Pharmacopœia. To understand the principles of volumetric analysis, and to prepare, standardise, and use volumetric solutions.

To be familiar with the construction and use of the balance, and to have a practical knowledge of the Imperial and metric systems of weights and measures.

To determine quantitatively the total alkaloids in cinchona bark and its official preparations, in the liquid extract of belladonna and its preparations, and in the liquid extract of ipecacuanha; also the strychnine in the extract, liquid extract, and tincture of nux vomica; the morphine in opium and its extract, liquid extract and tincture; and the resin in tincture of jalap.

To have a practical acquaintance with the methods of preparing the more important inorganic substances, including the non-metals and their compounds, and such metallic compounds as are included in the British Pharmacopœia, and also the following organic compounds, ether chloroform, amyl nitrite, ethyl acetate, and hydrocyanic acid, so that the candidate may be able to explain to the examiner the operations involved in their preparation, and, if called upon, to perform the operations or certain stages of them.

The syllabus given above is in operation up to and including the October examination 1923. From the January examinations 1924 the following changes operate—see introductory notes—and the new entrant will have certain sections transferred. The transferences will be:

(a) Knowledge of the usual impurities of the pharmacopœial chemicals.

(b) (From the practical.) Detection of impurities, and recognition of well-defined pharmacopœial chemicals.

(c) Detection of impurities in pharmacopœial organic compounds.

(d) The volumetric determinations of the Pharmacopœia.

(e) The assay work of galenicals.

(f) Practical acquaintance with the preparation of metallic compounds included in the Pharmacopœia.

All these will be transferred to practical pharmacy. It follows that students now being registered will have to deal with pure chemistry without thinking in terms of what may or may not be included in the Pharmacopœia. All the analyses will stand, volumetric or otherwise, and by the elimination of specific pharmacopœial methods it will mean more time can be given to the examination in chemistry and a better chance for the candidate. From the last returns we learn that many of the points we have so frequently laid down for a thorough grounding in the fundamentals of chemistry as the only true basis on which to build would appear to have been taken to heart. We reiterate the old complaint that pharmacy students are weak on mathematics, some knowledge of which is essential to the understanding of theoretical chemistry, and we again urge students now entering upon their training not to neglect this aspect of their scholastic years: it makes the theory easy and practical work a pleasure. The official returns show many references back, but a low percentage of complete failure in this subject only. But when chemistry and physics are considered together the percentage materially rises, which shows that the physics part is often neglected owing to the inability to grasp the inter-relationship of chemistry and physics.

PHYSICS.

The law of the conservation of energy; the law of gravitation; the balance; specific gravity; atmospheric pressure; pressure of aqueous vapour; the barometer, air-pump, and siphon; the law of Boyle; temperature; thermometers; the law of Charles; the law of gaseous diffusion; V. Meyer's method of determining vapour densities.

To determine the specific gravity of liquids and solids, and to be familiar with the general construction and use of the thermometer and barometer.

New Physics syllabus to come into operation in 1924:

(a) Units, mass, balance, force, energy, work; levers and pulleys; gravity, forms of matter, hydrostatics, pneumatics. (b) Temperature and thermal changes. (c) Light, reflection and refraction, photometry, mirrors, lenses, errors of vision and correction. (d) Magnets, static electricity currents, primary and secondary cells, chemical and thermal effects, Ohm's law.

This subject shows a great change. Sixty hours is the specified period for physics, but under the present syllabus

it becomes a subject of some magnitude for the new student. The instructions say "Candidates will be required to possess an elementary non-mathematical knowledge," but the term "non-mathematical" should not be taken too literally. The syllabus covers a big field, and if mathematics were made compulsory it would be an examination in itself, so that it can readily be understood it was thought necessary not to over-do the subject; hence the expression "non-mathematical." However, a real understanding of physics and physical problems must of necessity include some mathematical knowledge. It will be a practical subject, and candidates will be expected to show not only their knowledge, but also be able to explain the methods. The field is extensive, and sixty hours will be none too long for gaining a practical knowledge; and though it may be said to be only elementary, the extent of the field will fully tax the capacity of any candidate.

The failures and references back in this subject are high: probably it is the arrangement of the present syllabus which is at fault, as seeming to indicate that it is not of much importance. That is a mistake. Many candidates fail to be able to express in terms what should be known about the simple instruments they are called upon to handle. It is a practical subject, and no book-work can replace the knowledge which can only be derived from experience.

The First Day.—The above subjects include the first day's examination. Candidates must secure a pass in all three subjects; there is no question of aggregation. If a candidate passes in two subjects and fails in one, he or she may be referred in that one subject only, but failure in two means taking the three subjects again. In any case, no candidate can proceed to Part II. until a complete pass has been secured in each subject in Part I.

PART II

MATERIA MEDICA

To recognise specimens of crude drugs mentioned in the British Pharmacopœia or in the annexed list; to be acquainted with their botanical, zoological, and geographical sources, commercial varieties, the natural orders to which they belong, and the mode of collection and preparation for the market; to indicate the morphological nature of such as are organised, and the mode of formation of such as are unorganised; to describe them correctly, and to point out diagnostic characters either chemical or physical, the latter so far as they can be ascertained by the use of a lens. To name the chief active constituents of official drugs, to know the proportion present in good samples of the more important of them, and to possess a practical knowledge of any pharmacopœial tests or processes of assay applied to crude drugs or their official products.

Acori Calami Rhizoma	Elaterium	Papaveris Capsule
Alkannæ Radix	Elemi	Physostigmatis Semina
Althææ Radix	Erythrophlei Cortex	Pilocarpi microphylli Folia
Amomi Meleguetæ Semina	Eucalypti Folia	Pimenta
Areæ Semina	Euphorbiæ pilulifera Herba	Piper longum
Arnica Rhizoma	Euphorbium	Piper nigrum
Bryoniæ Radix	Fœni-græci Semina	Pix Burgundica
Cacao Semina	Fucus vesiculosus	Quercus Cortex
Calendulæ Flores	Galbanum	Rhamni Frangulæ Cortex
Cambogia	Guarana	Sabinæ Cacumina
Canellæ Cortex	Guttapercha	Sandaraca
Cantharis	Hellebori nigri Rhizoma	Sanguinaria Rhizoma
Cassia Cortex	Hordeum	Sanguis Draconis
Castoreum	Hyoscyami Semina	Sarsæ Radix
Cetraria islandica	Ignatii Semina	Scammonium
Chondrus crispus	Inulæ Radix	Sinapis Albæ Semina
Chrysanthemi cinerariæfolii Flores	Iridis Rhizoma	Sinapis Nigræ Semina
Cimicifugæ Rhizoma	Lacca	Stramonii Semina
Cinchonæ Calisaya Cortex	Lactucarium	Sumbul Radix
Cocæ Folia	Lauri Fructus	Tonco Semina
Cocculus Indicus	Lupulus	Ulm fulvæ Cortex
Conii Fructus	Lycopodium	Vanillæ Fructus
Convallariæ Flores	Manna	Veratri albi Rhizoma
Crocus	Mastiche	
Cumini Fructus	Maticæ Folia	
Cydoniæ Semina	Mosehus	
	Mylabris	
	Olibanum	

No change is contemplated here, and it is difficult to see what change can be made save in more accurate knowledge of the drugs. Students do not have the same opportunity as in the old days of handling crude drugs before college begins, but every chance should be seized for a first-hand acquaintance. The failure percentage is comparatively low, and from inquiries it appears to arise from an inadequate knowledge of active principles and distribution. Practical work here is comparatively easy, and is apt to overshadow the theoretical; but if the two were well balanced, failures would almost disappear.

PHARMACY.

I. Pharmacy (General).—(a) Operations requiring the use of heat. Evaporation, with particular reference to the preparation of extracts; special characters and modes of preparing the various classes of extracts; influence of surface, temperature, and pressure upon the rate of evaporation; water, steam and sand baths; distillation, ordinary, fractional, steam, and destructive, distinctive characters and objects of each; official preparations illustrating the various kinds of distillation, apparatus employed, the retort and receiver still and worm, Liebig's condenser, principles on which they are constructed and used. Sublimation; its objects and applications in pharmacy; official products of sublimation, calcination, and fusion. Desiccation; temperature best suited for drying particular drugs, loss in drying vegetable drugs, forms of drying ovens, principles on which they are constructed and used. (b) Disintegration of solid substances; cutting, bruising, and pulverisation, apparatus employed, principles indicating which is to be adopted in particular instances; methods for controlling the degree of comminution, sieves and sifting, trituration, levigation, elutriation, granulation, including methods for producing certain chemicals as fine powders, small crystals, scales, etc. Solution: its nature, solvent power of various menstrua, influences of (a) temperature; (b) state of division of the substance to be dissolved; (c) time; (d) position of the substance in the menstruum; lixiviation, infusion, digestion, and decoction; maceration, percolation and displacement, principles on which the successful performance of these processes depends; form and materials for percolators and other vessels employed. Filtration, objects and methods, filtering media, means of expediting filtration; dialysis, its application in pharmacy, construction and use of the dialyser. Expression; methods of obtaining the juices from plants; recovery of the residual liquids from tincture marcs, etc., screw, hydraulic and other presses. The principles involved in the dispensing of medicines, particularly with reference to the best excipients and methods for forming pill masses, the preparation and nature of emulsions, the most suitable emulsifying agents, and the best means of suspending insoluble substances in liquids.

The candidate is also required to show a general knowledge of the processes, and understand the principles of the processes by which official galenic preparations are made, and a knowledge of the proportion of active ingredient or crude material in such as contain aconite, antimony, arsenic, belladonna, cantharidin, chloral hydrate, chloroform, caustic potash, eolchicum, digitalis, ergot, iodine, iodoform, ipecacuanha, lead, mercury, nux vomica, opium, phenol, phosphorus, squill, stramonium, strophanthus, and official alkaloids and alkaloidal salts.

II. Practical Pharmacy and Dispensing.—The conduct of such operations of the British Pharmacopœia, or such parts of them as may be practicable, involved in the processes for preparing collodions, confections, decoctions, dilute acids, extracts (solid and liquid), glycerins, infusions, juices, liniments, lotions, mixtures, ointments, pill masses, plasters, powders (simple and compound), solutions, spirits, suppositories, syrups, tinctures, vinegars, waters, and wines.

To weigh, measure, and compound medicines; to write the directions in concise language in a neat and distinct hand; to finish and properly direct each package.

III. Latin and Prescription Reading.—The candidate will be required to read without abbreviation autograph prescriptions, translate them into English, understand the grammatical construction of the Latin, and render a literal as well as an appropriate translation of the directions for use. To detect errors, discover unusual doses, and have a general knowledge of posology. To calculate percentages and other quantities occurring in prescriptions; also to render in good Latin ordinary prescriptions written in English.

Pharmacy, which in reality includes dispensing, is the most important subject on the second day of the examination. It is divided into two portions: (a) General; (b) Practical pharmacy and dispensing. In general knowledge the subject-matter is the same, but in practical pharmacy after October 1923 there will be included the items taken from chemistry.

(a) *General.*—There is, in addition, added to section (a) "To possess a general knowledge of the adulterations and contaminations which may occur in the elements and inorganic compounds included in the British Pharmacopœia."

(b) *Practical Pharmacy and Dispensing.*—On the latter there is little to be said, but under the former the candidate may and undoubtedly will, be required to perform certain operations which he might have been called upon to perform in chemistry, but which were too widely extended to have justice done to them in the short time devoted to the practical examination. They are:—

(a) Pharmacopœial volumetric determinations.

(b) To detect impurities in pharmacopœial chemicals.

(c) Pharmacopœial assay work.

Latin and Prescription-reading are unaltered.

In addition, the new student will have to face this extension: To conduct operations of the B.P. and perform volumetric estimations therein described. To detect impurities in B.P. compounds. To determine alkaloidal content of standardised galenicals.

POISONS LAW

(a) To enumerate the poisons contained in the Schedule to the Poisons and Pharmacy Act, 1903, viz.: Poisons within Part I. and Part II. of the Schedule. (b) To describe minutely the conditions required upon the keeping, selling, and dispensing of poisons, both in Part I. and Part II. of the Schedule; and to write the proper entry required, according to Schedule F of the Pharmacy Act, 1868, for the sale of a poison coming within Part I. of the Poison Schedule. (c) To state the conditions imposed on the sale of scheduled poisons by wholesale and for export, and upon the sale of a scheduled poison when forming an ingredient

Syllabus for Qualifying Examination

(IN BRIEF).

Part I.

BOTANY.

Classification; Recognition of Specific Plants; Physical Characteristics; Anatomical Structure; Physiology, Reproduction; Physical Effects of Light and Gravity.

CHEMISTRY.

Chemical Principles; Non-Metals and their Compounds; Characters and Classification of Metals; Formation of Oxides and Salts; Carbon and its Oxides; Hydrocarbons, Acids, Alcohols; Aldehydes, Esters; Benzene and Pharmaceutical Homologues; Knowledge of Estimation of Carbon; Hydrogen, Nitrogen; Simple Chemical Problems.

PRACTICAL CHEMISTRY.

Analysis of not more than two Metals and two Acid Radicals; Identification and Knowledge of Medicinal Organic Compounds; Volumetric Analysis.

PHYSICS (Present Syllabus).

Conservation of Energy; Gravitation, Balance, Pressures; Diffusion, Vapour Densities; Thermometer, Barometer; Specific Gravity.

In January, 1924.

Mass, Force, Energy, Work; Forms of Matter; Temperature and Pressures; Light: Reflection and Refraction; Correction of Vision; Magnets: Static and Current Electricity; Primary and Secondary Cells.

Part II.

MATERIA MEDICA.

Pharmacopœial Drugs and others specified; Recognition, Classification; Sources, Structure, Chemical and Physical Characteristics; Active Principles.

PHARMACY.

Laboratory Methods and Appliances; Preparation and Production of Galenicals; Knowledge of Assay; Dispensing and Prescription Reading and Translation; Pharmacopœial Volumetric Estimations and Impurities (comes into force January 1924).

POISONS LAW (Pharmaceutical Jurisprudence).

Knowledge of Schedules, Conditions and Precautions of Sale.

in a medicine dispensed. (d) To state the conditions applicable to the sale of poisonous substances. (e) To explain the conditions imposed on the sale of arsenic by the Arsenic Act.

There is no provision here for the inclusion of the Regulations under the Dangerous Drugs Act, but the title is inclusive and may be held to cover such a point. There were 16 students referred in Poisons Law, though no actual failures in this subject alone during the past year, and the Dangerous Drugs Regulations are so tricky that the data published by THE CHEMIST AND DRUGGIST should become invaluable to students. The text of the Dangerous Drugs Act was given in the *C. & D.*, II., 1920, p. 1239; the full regulations, *C. & D.*, I., 1921, p. 737; a concise summary of the Regulations, *C. & D.*, I., 1921, p. 900; and a Commentary on the Regulations, *C. & D.*, I., 1921, p. 901, II., 1921, pp. 167 and 208. The Poisons Schedule (Poisons and Pharmacy Act) as amended by Orders in Council was printed in the *C. & D.*, I., 1921, p. 19. The Dictionary of Difficulties, *C. & D.*, has become a standard manual for the Dangerous Drugs Act. Particulars as to conditions to be observed on the sale of scheduled poisons in the United Kingdom are given in the *C. & D. Diary*, 1922. The main difficulty about the poisons law is the absence of a book adequately dealing with the subject in non-legal language. The *C. & D. Diary*, 1922, gives a list of all known poisons the sale of which is controlled, and a summary of the pharmacy laws. Any student basing his reading and knowledge on this information cannot fail to satisfy the examiner in poisons law.

The Major Examination

What we wrote in 1920 and 1921 on this examination still stands:—

For many years the examination commonly called the Major has been under a cloud. Several public institutions require it for their chief officer, but, generally speaking, the average man or woman takes it because of the knowledge that there is a higher standard than the Qualifying examination, and without it they would scarcely be happy. Clearly, the Major is one of temperament. The subject-matter has not been changed for many years and the syllabus is thoroughly out of date, but it enables a man to call himself a pharmaceutical chemist, and leaves him there. The Qualifying examination is undergoing radical changes, and as the revision of the whole syllabus is due within the next year or two, it is only natural to expect something to happen to the Major qualification. A resolution of the Council urged consideration of the examination in relation to a University degree, but so far nothing has transpired, and the Preliminary examination defects would be in the way of University recognition. The report of the Ministry of Health and its proposition for considering the ancillary services of Public Health have served to bring this examination into greater prominence. The Education Committee of the Pharmaceutical Society and the Ministry of Health, together with certain experts co-opted from outside the Council, have put forward tentative proposals for modernising the examination, and incidentally have showed a willingness to provide a syllabus for training in the performance of the duties, other than medical, in the report of the Ministry of Health. The situation arises owing to there being no qualification in the public services except where individual institutions give recognition to that of the Pharmaceutical Society.

The situation is still the same, but we have the assurance that the new Education Committee set up by the Pharmaceutical Council hope to bring the question to an issue; meantime, the examination is held twice a year, in April and July, both in London and Edinburgh. The fee is three guineas, and candidates must be qualified chemists and druggists. The date of entry is the 15th of the preceding month. The examination lasts three days, and includes chemistry, physics, materia medica, and pharmaceuticals and botany. The syllabus is in reality an extension of the Qualifying one and is best undertaken as a continuation of studies. The returns show that 55 per cent. pass the examination, but that means the whole only, as there is no provision for reference back. It appears certain that no new syllabus in the Qualifying examination can be published without redrafting the Major in the subjects which have been so long suspended.

SUBJECTS OF EXAMINATION

The new scheme for dealing with the Major qualification suggested:

Compulsory Subjects.—Chemistry, Materia Medica, to be re-named Pharmacognosy.

Optional Subjects.—Botany and Physics.

Additional Optional Subjects.—Physics in relation to Medicine, Practical Physiological Chemistry, Microbiology.

The candidate is allowed to take three additional optional subjects in place of botany and physics.

A compulsory curriculum would be required.

The examination should be divided, Part I., Materia Medica and one of the optional subjects; Part II., Chemistry and one or two optional subjects, as the case may be, not taken in Part I.

Summary of Examination-fees

Apart from the fees for collegiate courses the following are payable by pharmacy students:

Registration as student, £2 2s.

Part I. of Qualifying examination, £6 6s.

Re-examination in case of failure, £3 3s.

Part II., £6 6s.

Re-examination fee, £3 3s.

Candidates registered before December 31, 1919, may enter for the whole examination at one time. Fee £10 10s.

Major examination, £3 3s.

Books for Students

Each college principal has a preference for certain text-books which students are required to use. Some even have their own series specially printed. The following list contains particulars of the most popular text-books for pharmaceutical students.

BOTANY

"Elementary Botany," Edmonds (Longmans), 4s.

"Text-book of Botany," Amy Johnson (Allman), 8s. 6d.

"Structural Botany": Part 1, "Flowering Plants"; Part 2, "Flowerless Plants," D. H. Scott (Black), each 4s. 6d.

"Botanists' Pocket Book," Hayward, revised by G. C. Druce (Bell), 5s.

"Practical Botany for Beginners," Bower and Gwynne-Vaughan (Macmillan), 4s.

"Text-book of Botany for Medical and Pharmaceutical Students," James Small (Churchill), 25s.

"Botany for Students of Medicine and Pharmacy," Fritch and Salisbury (Bell), 19s. 6d.

THEORETICAL CHEMISTRY

"Elementary Inorganic Chemistry," James Walker (Bell), 5s. (suitable for beginners).

"Text-book of Inorganic Chemistry," Senter (Methuen), 8s. 6d.

"Modern Inorganic Chemistry," Mellor (Longmans), 12s. 6d.

"Text-book of Inorganic Chemistry," Newth (Longmans), 9s.

"Text-book of Inorganic Chemistry," Partington (Macmillan), 25s.

"Theoretical Organic Chemistry," Cohen (Macmillan), 7s.

"Chemistry," Attfield (Gurney and Jackson). New edition in preparation.

PHARMACEUTICAL LATIN AND PRESCRIPTION-READING

"Latin Grammar of Pharmacy," Joseph Ince (Baillière), 6s.

"Medical and Pharmaceutical Latin for Students of Medicine and Pharmacy," R. R. Bennett (Churchill), 10s. 6d.

MATERIA MEDICA

"Materia Medica," Southall, revised by E. W. Mann (Churchill), 12s. 6d.

"Text-book of Materia Medica," Greenish (Churchill), 27s.

"Drugs in Commerce; their Source, Preparation for the Market, and Prescription," Humphrey (Pitman), 3s.

PHARMACY

"British Pharmacopœia," Constable, 10s. 6d.

"Practical Pharmacy," Lucas (Churchill), 27s.

"Essentials of Pharmacy," Wootton (London College), 5s.

"Art of Dispensing," MacEwan (*C. & D.* Office), 8s.

PHYSICS

"Practical Physics," Allen and Moor (Macmillan), 8s. 6d.

"Text Book of Physics," Duncan and Starling (Macmillan), 15s.

"Manual of Physics," Crowther (Oxford University Press), 16s.

Schools of Pharmacy

The change in the regulations for examinations of the Pharmaceutical Society has resulted in a definite curriculum in pharmacy at institutions where the subjects are taught in a systematic manner covering an academic year. These institutions are required to reach a certain standard in teaching and equipment, and to ascertain whether this is attained they were inspected by Mr. E. S. Peck, M.A., on behalf of the Pharmaceutical Society.

The latest list of approved schools is as follows :

SCHOOLS APPROVED FOR PART I

Accrington Secondary School (Chemistry and Physics only)
 Accrington Technical School (Chemistry and Physics only)
 Barnstaple Grammar School (Chemistry and Physics only)
 Birmingham Central Secondary School
 Blackburn Municipal Technical School
 Blackpool Technical School (Chemistry and Physics only)
 Bournemouth Municipal College
 Bradford Technical College
 Bridlington Grammar School (Chemistry and Physics only)
 Bristol—Colston Girls' School and Merchants Venturers' Technical College
 Burnley Technical School
 Burslem—Wedgwood Technical School
 Cambridge County School
 Carlisle School of Chemistry
 Chesterfield Municipal Technical School (Chemistry and Physics only)
 Colchester Technical College (Chemistry and Physics only)
 Coventry—Bablake School (Chemistry and Physics only)
 Darlington Technical College
 Dartford Technical Institute (Chemistry and Physics only)
 Derby Technical College
 Dover County School for Boys (Chemistry and Physics only)
 Dover Technical Institute (Chemistry and Physics only)
 Eye Grammar School (Chemistry and Botany only)
 Gillingham Technical Institute (Chemistry and Physics only)
 Grimsby Municipal College (Chemistry and Physics only)
 Halifax Municipal Technical College
 Handsworth Technical School
 Harrogate Technical School
 Hastings Municipal School of Science
 Huddersfield Technical College
 Hull—Hymers College (Chemistry and Physics only)
 Hull Municipal Technical College (Chemistry and Physics only)
 Ipswich Municipal Secondary and Technical Schools (Chemistry and Physics only)
 Lancaster—Storey Institute (Chemistry and Physics only)
 Leeds Central Technical School
 Leicester—Wyggoston Grammar School
 Leith—Technical College
 London—
 Birkbeck College
 North London Collegiate School for Girls
 Northern Polytechnic Institute
 Norwood Technical Institute
 St. Saviour's and St. Olave's Grammar School for Girls, New Kent Road
 Sydenham County Technical School for Girls
 West Ham Municipal Technical Institute
 Manchester College of Technology
 Norwich Technical Institute (Chemistry and Physics only)
 Oxford City Technical School (Chemistry and Physics only)
 Paisley—Technical College
 Perth—The Academy
 Plymouth Technical School
 Preston—Harris Institute
 Reading University College
 Rochdale Municipal Technical School (Chemistry and Physics only)
 Scarborough Municipal Secondary School
 Sheffield—Central Secondary School
 Southampton University College
 Southend (Essex) Technical School (Chemistry and Physics only)
 Southport Technical School (Chemistry and Physics only)
 Torquay Secondary School
 Truro Central Technical Schools
 Walsall Municipal Institute
 Wellingborough Technical Institute (Chemistry and Physics only)
 Whitby—St. Hilda's Priory
 Wolverhampton Technical School
 Worcester—Victoria Institute (Chemistry and Physics only)

SCHOOLS APPROVED FOR PARTS I. AND II.

London

Gordon Hall School of Pharmacy for Women (Part II only)
 London College of Pharmacy
 School of Pharmacy of the Pharmaceutical Society
 South of England College of Pharmacy
 South-Western Polytechnic Institute, Chelsea
 Westminster College of Pharmacy

Provinces

Bath and West of England College of Pharmacy
 Birmingham Technical School
 Brighton Municipal Technical School
 Cardiff Technical College
 Exeter University College
 Leeds College of Pharmacy
 Leicester City Technical School
 Liverpool School of Pharmacy
 Manchester College of Pharmacy
 Manchester University
 Nottingham University College
 Portsmouth Municipal College
 Sunderland Technical College
 Swansea and West Wales Technical College

Scotland

Robert Gordon's College, Aberdeen
 Dundee Technical College
 Heriot-Watt College, Edinburgh
 Royal Dispensary School of Pharmacy, Edinburgh
 Glasgow Royal Technical College

ENGLAND AND WALES

LONDON

The School of Pharmacy

17 Bloomsbury Square, W.C. 1

Staff : Pharmaceutics—Professor Henry G. Greenish, F.I.C., F.L.S. (Dean). Demonstrators : F. J. Dyer, G. H. Sumner. Chemistry and Physics—Lecturer : G. E. Corfield, B.Sc., F.I.C. Demonstrators : C. J. Eastland, Miss Woodward, B. W. Melhuish, K. E. N. Williams, F. W. Adams. Botany—Lecturer : T. E. Wallis, B.Sc., F.I.C. Demonstrator : Miss A. M. Saunders.

The session commences in October, the course for the Qualifying examination lasts until June 1923 and, for the Major examination, until March 1923. Fee for the former course £31 10s., for the latter course £21.

Birkbeck College

Bream's Buildings, Fetter Lane, E.C. 4

Principal : George Senter, D.Sc.

Recognised for Part I. of the Qualifying examination. Autumn term commences in September. Day course £7 per term, or £18 5s. per session (three terms).

City of London College

White Street and Ropemaker Street, Moorfields, E.C. 2

Head of Commodities Department : S. J. Duly, B.A. Instruction in chemistry for the Qualifying and Major examinations of the Pharmaceutical Society is obtainable. The session begins in September. For particulars apply to Mr. David Savage, secretary.

Elt's College

Ballard's Lane, North Finchley, N. 12

Postal tuition for the Preliminary, Apothecaries' Hall, and Qualifying examinations is a special feature. While the student is fulfilling the requirements as to the "number of hours" either in the pharmacy or at the science school, the ordinary course of instruction provides a systematic course of study in any or all the subjects of the Syllabus. This course may be extended over two years. Fees : From £1 1s. to £5, 15s. 6d., according to subjects taken.

Gordon Hall School of Pharmacy for Women

Gordon Square, W.C. 1

Principals : Miss D. Maughan, Ph.C., and Miss M. M. A. Morgan, Ph.C.

Training is available for ladies in pharmacy, including business experience. Shorter courses of dispensing ;

chemistry, and materia medica, and individual coaching in separate subjects are also given. A ten months' course for the examination of the Society of Apothecaries is also available from October to July. Recognised for Part II. of the Qualifying examination.

London College of Chemistry, Pharmacy and Botany
with which is incorporated the South London School of Pharmacy (Muter's),
361 Clapham Road, S.W. 9 -

Staff: Henry Wootton, B.Sc., C. W. Gosling, Ph.C., W. F. Gulliver, Ph.C., B. C. Cook, M.P.S., H. J. Everett, Intar.B.Sc.

Independent courses extending over periods of nine, six, and three months are held for the Qualifying examination. Fee, £10 10s. per term. Evening classes, Monday, Wednesday and Thursday. From £1 1s. per term. Six months' Major course. Fee, £10 10s. Nine months' course for the Apothecaries' Hall examination for dispensers. Fee, £6 6s. per term.

North London Collegiate School for Girls
Sandall Road, N.W. 5

Headmistress: Miss I. M. Drummond.

Recognised for Part I. of the Qualifying examination. Two years' course. Fee, £30 per year.

Northern Polytechnic Institute
Holloway, N. 7

Principal: R. S. Clay, D.Sc. Head of Chemical Department: T. J. Drakeley, Ph.D., M.Sc., F.I.C., F.C.S. Botany: Eric Drabble, D.Sc., A.R.C.S., F.L.S. Physics: J. Nicol, B.A., B.Sc. Day and evening classes. Fees (day) £18 per session, and (evening) £3. For further particulars apply to the secretary.

St. Saviour's and St. Olave's Grammar School for Girls
New Kent Road, S.E. 1

Headmistress: Miss M. G. Frodsham, B.A.

Recognised for Part I. of the Qualifying examination. Autumn term begins in September. Full-time course only at ordinary school fees.

South of England College of Pharmacy
186 Clapham Road, S.W. 9

Principal: H. Lucas, Ph.C., F.C.S., assisted by a fully qualified staff.

A course of tuition for the Qualifying examination, extending over periods of six and nine months, will commence on October 9, fees £21 and £31 10s. Evening classes will also be resumed on October 16. The Major course is an evening one, extending from October 16 to July, fee £9 9s. Revision course for October examination starts on August 10. Fee, £6 6s.

South-Western Polytechnic Institute
Manresa Road, Chelsea, S.W. 3

Principal: Sidney Skinner, M.A. Head of Chemical Department: J. B. Coleman, A.R.C.Sc., F.I.C., F.C.S. Senior Lecturer in Pharmacy: C. Morton, Ph.C., F.C.S., assisted by F. N. Appleyard, Ph.C., A.I.C.

The school of pharmacy of the Institute has been reorganised. The additions include a pharmacy lecture-room, two additional chemical laboratories, a large pharmacy laboratory and a technical laboratory equipped with pharmaceutical machinery. Day courses are arranged for the Qualifying (Part I. or Part II.), Major and Apothecaries' Hall examinations. Inclusive fee, £7 per term (three months). Evening courses are also held. Fees from £1 to £3 per session (nine months), according to subjects taken. The evening courses are recognised by the Pharmaceutical Society as fulfilling the new conditions. It is thus possible to qualify by attendance on evening classes only. All courses commence on September 25. Copies of the pharmacy prospectus from the secretary.

West Ham Municipal College

Principal: T. C. Baillic, M.A., D.Sc.

An evening course is provided in pharmacy, materia medica, and chemistry, commencing in September.

Lecturers: Wm. Hurlstone, Ph.C., and R. S. Glennie, Ph.C. The classes meet as follows: Pharmacy and materia medica, Mondays and Tuesdays, 6.45 p.m. to 9.15 p.m., and Thursdays, 2.30 p.m. to 5 p.m. Chemistry, Thursdays, 6.45 p.m. to 9.15 p.m. Fee: Students residing or occupying business premises within the County Borough of West Ham, 14s. per session; other students, 21s. per session.

Westminster College of Pharmacy
190 Clapham Road, London, S.W. 9

Principals: G. S. V. Wills, Ph.C., and P. H. Woodnoth, Ph.C. Staff: J. G. Everett, Ph.C. (Council Medallist), T. E. Dunstan, and A. Dickes. Tuition for all pharmaceutical examinations. Revision course of six weeks commences on August 15. Fee, £6 6s. The 1922-23 session commences on October 10, and arrangements are made for revision, six and nine months' courses. Part-time classes for Part I. are held and preliminary instruction can be arranged by correspondence courses. Classes are held on Wednesday and Thursday evenings for the Pharmaceutical Preliminary examination.

PROVINCES

Accrington Technical School

Principal: J. P. Ackroyd, B.Sc. A three years' course in chemistry and physics is held for the Qualifying examination, Part I. Fee, 7s. 6d. for each year's course.

Barrow-in-Furness Technical School

Evening classes are held in chemistry from September to April. Fee: First year, 7s. 6d.; second and third years, 10s.

Bath and West of England College of Chemistry and Pharmacy

Principal: David J. Williams, Ph.C., F.C.S. (Silver Medallist). Staff: P. J. Thompson, chemist and druggist, F.C.S. (Silver Medallist); W. Cooper, Ph.C. (Silver and Bronze Medallist, Fairchild Prizeman); A. C. Cooper, Ph.C. (Bronze Medallist); A. H. Millard. Day classes commence on August 9 (special Qualifying examination revision); October 11 (Qualifying revision, long course, Major and Apothecaries' Hall courses). Fees on application. The school is fully equipped in accordance with modern requirements, and the premises have been recently extended. Correspondence courses in preparation for Apothecaries' Hall, Qualifying, and Major examinations are arranged. In this section £165 has been won at scholarships.

Birmingham and Midland College of Chemistry, Pharmacy and Botany

Principal: G. L. Scott, Ph.C.

The next term for the Qualifying examination, beginning on October 5, will consist of two courses, an elementary (six or nine months) and an advanced (three months). Half-day and evening classes have also been arranged, the former on Wednesdays and Thursdays (2 p.m. to 9 p.m.), and the latter on Mondays and Thursdays (7 p.m. to 9 p.m.), and on Wednesdays (6 p.m. to 9 p.m.). Fees (for full-time course): three months, £9 9s.; six months, £18 18s.; nine months, £27 6s.; for part-time classes, any class, £2 10s. for three months. A full-time class for the Major examination will be formed, fee £9 9s. for three months. Part-time classes are by arrangement. Classes for students entering for the Apothecaries' Hall assistants' examination are held on alternate mornings and afternoons. Fee for a nine months' course is £15 15s.

Birmingham Municipal Technical School

Principal: W. E. Sumner, D.Sc. Head of Chemistry Department: J. Newton Friend, D.Sc. Lecturers in Pharmaceutics: H. Berry, Ph.C., and R. H. Rowson, Ph.C.

Courses in pharmacy are arranged for students wishing to study any branch of pharmaceutics. On October 2

a full-time course for Parts I. and II. of the Qualifying examination commences, ending June 1923. Fee, £20. The Major course commences October 2. Fee, £20. Part-time courses, commencing September 20, are intended for apprentices who wish to take Part I. of the Qualifying examination of the Pharmaceutical Society, or (chemistry only) for the Assistants' examination of the Society of Apothecaries. The fees for three evenings per week are as follows: First year, 10s. per session; second year, 12s. 6d.; third year, 15s.

Birmingham, Handsworth Technical School.

Principal: W. E. Harrison, A.R.C.S. Recognised for Part I. of the Qualifying examination. Fees: Evening.—Pharmaceutical classes in chemistry, physics, and botany, 10s. each subject per session. Day.—One half-day per week, £1 per session; two half-days, £2 per session; three half-days, £3 per session. Students under eighteen years of age are admitted at a reduced fee of £1 per session for two half-days per week (additional half-days as above). A fee paid for day classes includes admission to approved evening classes.

Blackburn Technical College

Principal: F. J. Harlow, B.Sc. Physics: J. B. Marsden, B.Sc. A. H. Berry. Botany: J. Ranson. Head of Chemistry Department: G. W. F. Holroyd, M.A., F.I.C., assisted by Messrs. F. J. Cooper, J. Rhodes, B.Sc. (Lond.), A.I.C., M.I.M.E., Miss E. Holt, B.Sc. (Lond.), and J. H. Stringfellow.

Full-time day courses in chemistry, physics, and botany, for the Qualifying examination, will be held in addition to special classes for pharmaceutical apprentices on three half-days per week in these subjects. The syllabus for the Qualifying examination will be covered in this course also. Fee for the session, £1.

Blackpool Technical School.

Recognised in chemistry and physics for Part I. of the Qualifying examination. Particulars on application to the Principal.

Bournemouth Municipal College

Principal: Hubert Painter, B.Sc. The college is recognised for Part I. of the Qualifying examination. Day classes, fee (thirteen hours per week), £4 7s. 6d. per term; reduced fees for part time. Evening classes, fee, about £1 1s. per session of two terms. Term commences September.

Bradford Technical College

Principal: Professor H. Richardson, M.Sc. Head of Department of Biology: A. M. Smith, M.A. (Cantab.). Assistant Lecturer in Pharmacy and Materia Medica: J. W. Cooper, M.P.S.

The general pharmaceutical course involves part-time attendance during two sessions, to meet the needs of students for the Qualifying examination. A supplementary course is also arranged for the Major examination. A part-time assistants' course is designed for the Assistants' examination of the Society of Apothecaries. Evening courses, three evenings per week during three or five sessions, are also arranged for the Qualifying examination. Fees: General course, £9 9s.; assistants', £9 9s.; evening (with half-day per week in laboratory), £1 11s. 6d. Opening dates: Evening, September 18; day, September 26.

Bridlington School

Headmaster: Arthur Thornton, M.A. The school is recognised in chemistry and physics for Part I. of the Qualifying examination. Fee: £18 per annum. Session begins September 21.

Brighton Technical School of Pharmacy

Principal: W. Mansergh Varley, M.A., D.Sc., Ph.D. Full-time day courses have been arranged for 1922-23, under the direction of H. B. Mackie, Ph.C., M.P.S., F.C.S., head of the Department of Pharmacy, for the Qualifying examination, Parts I. and II., and the Major examination. Each course commences on September 19. Fees: Local students, £7 7s. per term or £21 per session;

non-local students, £11 0s. 6d. per term or £31 10s. per session. The Major course is practically booked up, but additional entries may be considered. The courses are conducted under the active supervision of an Advisory Committee of local pharmacists. The social and recreative life of the College is directed by the Students' Association, which has an extensive recreation ground. The various Sussex Pharmacists' Associations offer silver medals for the most successful students.

Bristol, Colston's Girls' School

Recognised for Part I. of the Qualifying examination. Post-matriculation classes in chemistry, botany and physics. Two years' course, Fee, £15 15s. per annum.

Bristol Merchant Venturers' Technical College

Principal: Professor J. Wertheimer, B.A., D.Sc. Evening classes will be held in chemistry, elementary physics, light and heat, magnetism and electricity, and botany. Recognised for Part I. of the Qualifying examination. The session commences on September 25. Fee, for one class with laboratory work, 12s. 6d.; lecture class, 10s.; course of three subjects, 10s. each class.

Burnley Municipal College

Principal: Mr. W. Munn Rankin, M.Sc. Recognised for Part I. of the Qualifying examination. Full-time course (one year), £5 5s. per session, Part time (two years), £1 11s. 6d. per session.

Burslem, Wedgwood Technical School

Principal: M. S. Pickering, B.Sc. (London.). Lecturer in Materia Medica and Pharmacy: S. T. Bennett, M.P.S. The Pharmaceutical course extends over a period of four years. Full-time courses are arranged if desired. Fees: First and second year, 30s. per session; third and fourth year, 50s. The session is from September to June.

Cambridge County School for Boys

Recognised for Part I. of the Qualifying examination. Headmaster: C. J. R. Whitmore, A.I.C.

Cardiff Technical College

Principal: Charles Coles, B.Sc. Head of Department: Thomas Lewis, Ph.C. Lecturer in Pharmacy: Fred. C. Highfield, Ph.C. Chemistry: E. A. Rudge, B.Sc., A.I.C. Assistant: H. Aldred, M.Sc., A.I.C. Physics: Thomas Jones, M.C., A.R.C.Sc., B.Sc. Botany: To be appointed.

A full-time day course of nine months for the Qualifying examination will commence on October 3. Fee, £15 15s. For the Apothecaries' Hall Assistants' examination a nine-months' course will commence on October 3. Fee, £15 15s. A part-time course in pharmacy, materia medica, and practical dispensing will be held on Mondays and Fridays, 2.30 p.m. to 5 p.m. Fee, £3 3s. Students may complete their course by enrolling at evening classes in chemistry and botany (commencing September 18), and should consult Mr. Lewis as to other subjects during the enrolment week (commencing September 11). Silver and bronze medals, together with other prizes, are offered for competition by the South Wales and Monmouthshire Federation of Pharmacists and certain individual members.

Carlisle School of Chemistry

Headmaster: Arthur Hopwood, D.Sc. Classes are held for pharmaceutical students. The session commences in October. Fee: 2s. 6d. to 5s. per hour. Recognised for Part I. of the Qualifying examination.

Chesterfield Municipal Technical School

Recognised in chemistry and physics for Part I. of the Qualifying examination. Session commences in September.

Colchester Technical College

Staff: H. P. Wilson, F.C.S., Headmaster. Chemistry: E. E. Reeve, M.Sc. Botany: A. W. Nunn, M.P.S.

Recognised in chemistry and physics for Part I. of the Qualifying examination. Session (until April 14, 1923) opens on September 25. Three years' course. Fee, 10s. complete course each year.

Coventry, Bablake School

Principal: J. N. Frankland, M.A., D.Sc. Special provision is made for practical and theoretical work for Part I. of the Qualifying examination, for which this is a recognised school.

Darlington Technical College

Principal: J. W. Angles, M.Sc., A.M.I.Mech.E. Chemistry: A. J. Bishop, B.Sc., and J. Watson, M.Sc., A.I.C. Evening Courses in pharmacy from 7 to 9.30 P.M. First year, 7s. 6d.; second year, 10s.; third year, 12s. 6d. Recognised for Part I. of the Qualifying examination.

Derby Technical College

Recognised for Part I. of the Qualifying examination. Principal: F. W. Shurlock, B.A., B.Sc. Lecturer in pharmacy: W. E. Stokes, Ph.C. Fees: £5 5s. per term; £15 15s. per session.

Dover Technical Institute

The chemistry course is especially intended for pharmaceutical students. Evenings only. Fee, 12s. 6d. for one or two subjects.

Exeter University College

Principal: H. J. W. Hetherington, M.A. Chemistry: Professor W. H. Lewis, M.A., F.I.C., S. Glasstone, M.Sc.; Ph.D., A.I.C., and Miss R. King, M.Sc. Physics: F. Newman, D.Sc., Ph.D., A.R.C.Sc. Botany: J. L. Sager, M.A., A. H. Ware, Ph.C. Pharmaceutics: A. H. Ware, Ph.C.

The courses include preparation for the Qualifying examination of the Pharmaceutical Society and for the Apothecaries' Assistants' examination. The fee for the former is £31 10s. and for the latter £18 18s.

Eye (Suffolk) Grammar School

Headmaster: F. J. Eldridge, B.Sc., L.C.P.

Recognised for botany and chemistry of the Qualifying examination, Part I. Day course, covering a period of three years, by arrangement with the pharmacists of the town. Fees per term, £3 6s. 8d.

Gillingham (Kent) Technical Institute

Principal: F. E. Rowett, M.A., D.Sc.

Approved for chemistry and physics, Part I. of the Qualifying examination. Evening classes (three years' course). Fee, 17s. 6d. per session.

Grimsby Municipal College

Principal: Ernest J. Stream, M.A. Classes in chemistry, physics and botany. Fees, £2 2s. to £3 3s. per term. Courses and hours of instruction to suit individual pupils.

Halifax Municipal Technical College

Principal: J. Crowther, B.Sc. Head of Chemistry Department: W. J. Stansfield, A.R.C.S., F.C.S., A.I.C. Lecturer in Botany: F. Hall, M.P.S. A course of instruction, extending over two sessions, is arranged for Part I. of the Qualifying examination. Instruction in chemistry, physics, and botany. The classes are held on Tuesday, Wednesday, and Thursday afternoons, and Tuesday evening. Duration of session: September 11 to July 19, 1923. Fee, £1 1s. per session.

Harrogate Technical School

Principal: W. E. Jalland, M.Sc., L.C.P. Recognised for Part I. of the Qualifying examination. The course in chemistry extends over three years, botany one year, and physics one year. The classes meet once a week for two and a-half hours. Fees, 10s. for two subjects. The arrangement of the classes enables a student to take a revision course in physics or botany when completing his chemistry course.

Hastings Municipal School of Science

Principal: G. M. Norman, B.Sc. Recognised for Part I. of the Qualifying examination. Session begins in September. Fee, 6s. for each class, with 7s. 6d. additional for practical chemistry for the whole session.

Huddersfield Technical College

Principal: J. F. Hudson, M.A., B.Sc. Pharmacy and Materia Medica: E. Cockroft, Ph.C.

: Full day (fee, £12 12s. per session) and evening courses (fee, £1 5s. per session) in subjects for Part I. of the Qualifying examination of the Pharmaceutical Society are held.

Hull Municipal Technical College

Head of Chemistry Department: Geo. E. Johnson, B.Sc., F.I.C., assisted by eight lecturers.

Classes in inorganic and organic chemistry, physics, botany, Latin and prescription-reading, pharmacy, and materia medica are conducted.

Ipswich Municipal Schools

Courses in chemistry and physics are recognised for the Qualifying examination. Application should be made to the Principal.

Lancaster Technical School

Headmaster: F. H. Mould, B.Sc. Classes are held in chemistry and physics, and these are recognised for Part I. of the Qualifying examination. Local apprentices may attend on Monday afternoons and several evenings per week. Fee for the course, 15s.

Leeds College of Pharmacy

Principal: F. Pilkington Sargeant, Ph.C., F.C.S., assisted by Arthur W. Lupton, Ph.C.

A full-time course for the Qualifying examination begins on October 10, for which the fee is £31 10s. Six months' course for Part I. or II., £21. Revision course from August 15 until September 23. Fee, £6 6s. Applications for benches to Mr. Lupton.

Leeds Technical School

Principal: R. E. Barnett, B.Sc. Chemistry: R. Gawler, M.Sc., F.I.C., assisted by A. Taylor, M.Sc., and H. E. Goodson, A.R.C.S.

A part-time day course is held in chemistry, physics, and botany for the Qualifying examination. Fee, £12 12s. for the session. The evening course in the same subjects occupies three sessions. A preparatory course for the Preliminary examination is available. Fee, £1 1s. The full course for the Apothecaries' Hall examination in chemistry, materia medica, and dispensing occupies nine months (fee, £15 15s.) and is conducted in co-operation with the Leeds Public Dispensary. Particulars, post free, on application to the Principal.

Leicester City Technical School

Principal: J. H. Hawthorn, M.A. Chemistry: A. S. Wood, M.Sc., A.I.C., F. Jones, B.Sc., F.C.S. Pharmacy: F. W. Thompson, Ph.C.

The school of pharmacy is thoroughly equipped for the Qualifying examination. Nine months' course; fee, £31 10s. Part time, £4. Students prepared for the Assistants' examination of the Society of Apothecaries. Course for apprentices and students for the Preliminary examination. Commencing date, September 11.

Leicester, The Wyggeston Grammar School

Headmaster: T. Kingdom, M.A.

The advanced science course is recognised for Part I. of the Qualifying examination. There are six hours of instruction per week throughout a three-term session extending from September to July. Fees, £15 15s. for the session.

Liverpool School of Pharmacy

Principal: H. Humphreys Jones, A.I.C., Ph.C., F.C.S., assisted by J. Butler, B.Sc. (Hons. chemistry), M.P.S. Revision course for Parts I. and II. of the Qualifying examination begin on August 15. Fee, £6 6s. Autumn session commences October 4 (till July, 1923). Fee, £31 10s. Part-time classes (Wednesday afternoons and evenings and Tuesday evenings) commence early in October.

Manchester University

The Qualifying and Major courses in the Pharmaceutical Department commence in October and continue for a period of six to nine months, the composition-fees being £22 1s. and £31 10s. respectively. Part-time (afternoon) and evening courses, extending over a period of three years, have also been arranged for Part I. of the Qualifying examination at the College of Technology; fee, £12 12s. Degree courses in pharmacy are available here, and the equipment is unsurpassed by any other pharmaceutical institute. Mr. James Grier, M.Sc., Ph.C., is in charge, assisted by Miss Ivy Roberts, B.Sc., Ph.C. (Pereira Medallist).

Manchester School of Pharmacy

Principal: Harry Brindle, B.Sc. (Lond.), F.C.S., Ph.C., A.I.C. Assisted by Chas. Turner, F.L.S., F.C.S., Ph.C., F. Brindle, M.P.S., and M. A. Bowden, M.P.S. New term for the Qualifying examination commences on October 9. The school was founded in 1882, and is, therefore, one of the oldest in Great Britain. For particulars apply to the Principal.

Newport (Mon.) Technical Institute

Principal: G. R. Bennett, B.Sc.; Chemistry: A. Brennan, B.Sc.; Physics: H. Rowlands, B.Sc.

A course is arranged by which the students can attend the ordinary class of the institution in physics and chemistry on Tuesday and the special class in pharmacy on Thursday afternoon. For apprentices who can only attend in the evening, chemistry can be taken on Monday or Tuesday and physics on Wednesday or Thursday.

Norwich Municipal Technical Institute

Principal: Hugh Ramage, M.A., F.R.Sc.I. The physics and chemistry classes have been recognised for Part I. of the Qualifying examination. Day and evening classes commence in September. Fees: From 3s. 6d. to 15s., according to stage and classes taken.

Nottingham University College

Principal: Professor W. H. Heaton, M.A.; Chemistry: Professor Kipping, F.R.S., and six assistants. Botany: Professor Carr, M.A., and three assistants. Physics: Professor Barton, F.R.S., and five assistants. Pharmacy: Materia Medica and Dispensing: A. O. Bentley, Ph.C., and Mrs. K. Stather.

Full-time day course (nine months) for the Qualifying examination. Fee, £30. Major (six months), £20. Prospectus will be sent free on application to the Registrar. Next session begins October 3.

Oxford City Technical School

Recognised in chemistry and physics for Part I. of the Qualifying examination. Session commences in September.

Plymouth Technical School

Chemical Department: Headmaster, J. R. Thackrah, M.A. (Oxon), Ph.D. Recognised for Part I. Part-time courses for Part I. of the Qualifying examination are held three afternoons or evenings each week. Fee: £3 3s. per session. Full-day courses for registered students. Fee: £24.

Portsmouth Municipal College

Principal: Oliver Freeman, B.Sc. Head of Chemical Department: W. H. Watson, M.Sc. Lecturer on Pharmacy: F. Hemming, M.P.S.

There are full-time day courses for the Qualifying examination and for the Assistants to Apothecaries examination. There are also separate courses for evening students. Fees for day students: Residents of the borough, £15 15s.; non-resident, £21 per session.

Preston, Harris Institute

Principal: T. R. Jolly. Affiliated to Universities of Manchester and Liverpool. Tuition in chemistry, physics, and botany. Opening date September 19. Fee,

£9 9s. per session of three subjects, or £3 3s. per term. One subject, £4 5s. per session; two, £7. Recognised for Part I. of the Qualifying examination.

Reading University College

Lecturer in Botany: Dr. A. H. Burt. A botany class, commencing on September 28, will be held on Thursdays from 7 p.m. to 9.30 p.m. Fee, 12s. 6d. Suitable for Part I. of the Qualifying examination.

Salford Royal Technical College

Principal: Bertram Prentice, D.Sc., Ph.D.

Day and evening classes suited for pharmaceutical students are held in chemistry and physics. Day-course fee: £3 3s. to £7 17s. 6d. per session of three terms. Evening: 15s. to £2 2s.

Scarborough Municipal Secondary School

Classes are held in chemistry, physics and botany, to which apprentices, by arrangement with the local branch of the Pharmaceutical Society, are admitted at a special fee.

Sheffield Central Commercial College

Principal: W. B. Marshman. Recognised for Part I. of the Qualifying examination in chemistry and physics. Classes will be held from September 1922 to May 1923 in chemistry, physics and botany. Fee for complete course, 17s. 6d. A course of practical organic chemistry is taken during the summer months. Classes for junior students who have not passed the Preliminary examination are also held. Fee, 10s. 6d.

Sheffield University

Classes in the subjects for Part I. of the Qualifying examination. Local students should apply to Mr. W. M. Gibbons, Registrar.

Southampton University College

Day courses are arranged for Part I. of the Qualifying examination. For particulars apply to the Registrar.

Southend Technical School

Headmaster: M. Finn, M.Sc.

Recognised in chemistry and physics for Part I. of the Qualifying examination. Evening classes, 15s. per term for either subject.

Southport Technical School

Principal: Fred Blomley, B.Com. Approved for Part I. of the Qualifying examination in chemistry and physics. Evening classes. Fee: 12s. 6d. for any number of subjects; chemistry 5s. extra. Rebate of 2s. 6d. for students who register during registration week.

Sunderland Technical College

Principal: V. A. Mundella, M.A., B.Sc. Pharmacy, Dispensing, and Materia Medica. Miss Hope Winch (Pereira Medallist). Chemistry: C. F. Baker, B.Sc., Ph.D. Botany: W. Hood. Physics: G. Nelson, B.Sc. Recognised for Parts I. and II. of the Qualifying examination. For Part I., classes are held on Wednesdays (afternoon and evening) to cover two sessions. Fee: £1 1s. per session.

Swansea Technical College

There is a preparatory course (full or part time) for Part I. subjects starting in September. The course for the Qualifying examination is covered in the session October-July. Inclusive fee, £21. A six months' course for the Major examination, which starts in September. Particulars on application at the college.

Truro Technical School

Principal: C. G. M. Delahunt, M.A. A pharmaceutical course extending over two to three years is available, including chemistry, physics, botany, materia medica, pharmacy, and dispensing. Fees: Day classes, £2 4s. per term; evening, 5s. to 7s. per subject. Group course, 10s. per session.

Walsall Municipal Institute

Principal: Frank E. Thompson, A.R.C.S. (Lond.), F.I.C., F.C.S.

Recognised in chemistry, botany and physics for Part I. of the Qualifying examination. Fee, 10s.

Wellingborough Technical Institute

Principal: F. J. Thorpe, B.Sc. (Lond.), F.R.G.S. Recognised in chemistry and physics for Part I. of the Qualifying examination. Botany under consideration. Fee for the three subjects (evenings only), 12s. 6d. for first year, 15s. for subsequent years. Laboratory open on shop early-closing day.

Wigan and District Mining and Technical College

Principal: S. C. Laws, M.A., M.Sc. Head of Chemistry Department: E. B. Naylor, M.Sc., F.I.C. Lecturers: H. Crofts, M.Sc., A.I.C., J. Harris, B.Sc. Lecturer in Pharmaceutics: T. H. Winstanley, M.P.S., F.C.S. Mathematics: H. Sutcliffe, M.Sc., M. M. Das, B.Sc. Physics: H. Morton, B.Sc.

The next session begins on September 18. Fees: Part-time course, £1 1s.; full time, £10 10s. The college calendar gives further particulars.

Wolverhampton Science and Technical School

Head of Chemical Department: Dr. T. J. Murray, M.Sc., F.I.C. Lecturer in Materia Medica and Pharmacy: J. M. Caley, M.P.S. Lecturer in Physics: A. T. Harrison, B.Sc.

The session commences on September 11 and continues until the end of April. It is followed by a short summer session, in which supplementary and revision work, field work in botany, etc., may be taken. Fees: Course in chemistry or pharmacy, including special part-time day classes, £1 5s; evening lectures in individual subjects, £1 per session.

Worcester, Victoria Institute Schools

Recognised in chemistry and physics for Part I. of the Qualifying examination. Classes on Tuesday and Thursday afternoons and evenings, commencing on September 19. Fee, £1 per session (30 weeks) for each subject.

SCOTLAND**Aberdeen, Robert Gordon's Technical College**

Chemistry: Professor W. Maitland, D.Sc.; R. Craven, B.Sc., A.R.C.S., A.I.C.; J. Harley, M.A., B.Sc.; J. E. Ritchie, M.A., B.Sc. Pharmacy: E. Gower Bryant, B.Sc., Ph.C., F.C.S.; D. S. Rattray, Ph.C.; C. A. Lee, M.A., B.Sc.; F. Scorgie, M.A., B.Sc.

The day course for the Qualifying examination opens on September 5 and continues until June 1923. Fee, £28 7s. The evening course occupies four sessions. Fee, £2 per session. Students may then join a revision (April to June) course at a reduced fee of £8 8s. Major course (October-June), £21.

Dundee Technical College

Heads of Departments: Botany and Pharmacy—D. McCall, B.Sc., M.P.S. Chemistry and Physics—C. W. Cochrane, D.S.O., B.Sc. Students are prepared for the Qualifying and Major examinations of the Pharmaceutical Society. Nine months' day course commences October 2. Fees: Qualifying examination, including all laboratory requirements, complete nine months' course, £31 10s. (£10 10s. for each term). Major examination, £5 5s. for each term of three months. Evening classes for Part I. are available. First and second years, £1; third year, £1 10s.

Edinburgh, Heriot-Watt College

Chambers Street

Principal: A. P. Laurie, M.A., D.Sc., F.R.S.E. Professor of Chemistry: A. Archibald Boon, B.A., D.Sc., F.I.C., F.R.S.E. Lecturers: Chemistry—R. H. Hopkins,

B.Sc., F.I.C. (Bio-Chemistry), James Sandilands, A.I.C., Assoc., H.W.C., Hugh H. Campbell, B.Sc., Assoc., H.W.C. Physics—William Watson, M.A., B.Sc. (Head of Department), John Milne. Botany—Andrew Howison, M.A., B.Sc. Pharmaceutics—John C. Henderson, Ph.C., and demonstrators in each subject. Complete courses are provided in all the subjects required for the examinations (Qualifying and Major) of the Pharmaceutical Society of Great Britain. In general, during the autumn, spring and summer terms of each session, the work will be as follows: Chemistry and physics during the forenoons, and botany and pharmaceutics during the afternoons. The fee for each of the courses is £31 10s., plus 5s., matriculation fee. Full particulars may be had on application to Professor Boon.

Royal Dispensary and School of Pharmacy of Edinburgh
21 West Richmond Street

Principal: William Duncan, Ph.C., F.C.S., assisted by W. G. Mackenzie, Ph.C., and Eric A. Knott, Ph.C. The next session begins on October 3. Complete day courses for Parts I. and II. of the Qualifying examination are provided. Evening courses in physics, chemistry and botany are also held. Fees: Day, £31 10s.; evening, £12 12s. Day benches filled, but there are still a few vacant in the evening.

Glasgow Royal Technical College

Superintendent and lecturer in botany and materia medica: David Ellis, D.Sc., Ph.D., F.R.S.E. Lecturer in pharmacy and materia medica: J. P. Todd, Ph.C.

The Professors of Chemistry and of Physics undertake the work in their respective subjects. Classes for the Qualifying and Major examinations, and also for the degree of B.Sc. (pharmacy) begin in September.

Glasgow School of Pharmacy

26, India Street

Principal: Malcolm M. Irvine, Ph.C., assisted by Jas. Tulloch, M.A., and Jas. Todd, Ph.C.

This school has accommodation for over a hundred students. A nine months' course begins in October for the Qualifying examination of the Pharmaceutical Society. An evening course extends over two sessions.

Leith Technical College

Recognised for Part I. of the Qualifying examination. Session opens in September.

Paisley Technical College

Principal: Angus McLean, B.Sc. (Lond.). The course is recognised for Part I. of the Qualifying examination. Session commences in September. Classes extend over three sessions. Fee: 25s. per session. Classes are also arranged for the Preliminary examination. Fee: 15s.

Perth Academy

Headmaster: E. J. Balfour, M.A., B.Sc. Physics and Chemistry: Sinclair Grant, M.A. Botany: George F. Bates, B.A., B.Sc. The pharmacy course consists of a winter and a summer session. Fee: 5s. for the course (returnable if seventy-two hours are attended in winter). Recognised for Part I. of the Qualifying examination.

Dispenserships

Official positions as dispensers or pharmacists are open to qualified chemists in the principal hospitals and dispensaries of the United Kingdom, the tendency being to replace unqualified dispensers by registered persons. There are also dispenserships under Boards of Guardians, the Metropolitan Asylums Board, and the Prison Commissioners. Naval hospitals employ pharmacists for dispensing and store-keeping. In the Royal Army Medical Corps a scheme was put forward in January 1919 (*C. & D.*, 1919, p. 73) by which pharmacists may attain the rank of staff sergeant.

Ireland

Until the Pharmacy Act (Ireland), 1875, the dispensing of medical prescriptions was restricted to apothecaries and other medical practitioners. The principal effect of the 1875 Act was to authorise those registered under it—pharmaceutical chemists—to do this dispensing also; further, it restricted the sale of poisons to such persons and others who previously had the right. By an amending Act of 1890 the sale of poisons by retail was extended to a class of non-dispensers—registered druggists. Those persons who were in business when the first Act passed are designated chemists and druggists and are a diminishing body, as the continuation of the title was not provided for in the new Act. A qualification for assistants to pharmaceutical chemists was also created by the 1890 Act, these being entitled to transact the business in the temporary absence of their employers. There is a certain amount of unrest in pharmacy circles in Ireland, due to the uncertain effect of the Government of Ireland Act upon the functions of the Pharmaceutical Society of Ireland, which is the statutory body regulating the practice of pharmacy in Ireland. There is a movement in the North of Ireland which seeks to profit by the political changes to improve the status of practitioners of pharmacy. This has already borne fruit by the institution of a Faculty of Applied Science Technology at the Queen's University, Belfast, which makes it possible to obtain in from three to five years the degree of B.Sc. in pharmacy. The conversion of the registered druggist grade into one of dispensing chemists is another proposition emanating from the Belfast chemists. It is not intended, however, to limit the jurisdiction of the Pharmaceutical Society of Ireland, which, as we have stated, is the examination and registration body for Ireland. The Secretary and Registrar is Mr. A. T. Ferrall, 67 Lower Mount Street, Dublin.

Preliminary Examination

The Pharmaceutical Society of Ireland conducts its own Preliminary examination, and it has been suggested that the standard of this test should be raised and efforts made to get the examination accepted by medical examining bodies and the universities in place of the entrance examinations of these bodies. There is not, however, much point in this, as the Pharmaceutical Society accepts in lieu of its Preliminary examination the certificates of the following examining bodies: The Matriculation or Preliminary examination of the University of Dublin, Public Entrance examination (large certificate); the National University of Ireland, Matriculation examination; the Royal Colleges of Physicians and Surgeons, Ireland, Preliminary examination; the Intermediate Education Board for Ireland, Junior, Middle, or Senior Grade examinations in the following subjects: English, Latin, arithmetic, algebra, geometry, and Greek, or a modern language; or such other examination as shall be deemed by the Pharmaceutical Council as equivalent thereto, *all the subjects having been passed at one time*. Provided that every certificate accepted shall include Latin as one of its subjects. Any such examination to be passed *prior to the statutory service at pharmacy*, unless such service has been commenced before January 1, 1907. A Committee of the Pharmaceutical Society of Ireland is considering possible modifications of the Preliminary examination.

The subjects of the Preliminary examination are:—

Latin.—Translate and parse sentences from Cæsar's "Commentaries (De Bello Gallico)," first book, or Virgil's

"Æneid," first book. Translate an easy English sentence into Latin.

English.—English grammar, including orthography and parsing. Write on a subject selected by the examiner, and write from dictation.

Arithmetic.—First four rules, simple proportion, vulgar fractions and decimals. Describe the British weights and measures and the metric system.

Algebra.—As far as simple equations, inclusive.

Geometry.—Including the first book of Euclid. Also one of the following subjects: French, German, or any modern language.

The examination is held at 67 Lower Mount Street, Dublin, on the first Thursday and following days in January, April, July and October, at 10 a.m. A fee of £3 3s. must be lodged with the Bank of Ireland to the credit of the Society, and the receipt forwarded to the Registrar (Mr. A. T. Ferrall), 67, Lower Mount Street, Dublin, with birth certificate and the name of the optional subject, at least fourteen clear days before the commencement of the examination. The re-examination fee is £2 2s. A copy of the marks awarded in the examination to any candidate is supplied for 2s. 6d. The Irish Preliminary examination is accepted by the British Society as an entrance examination, this being the only instance of reciprocal treatment between the two Societies.

Irish Pharmacy Qualifications

(IN BRIEF)

L.P.S.I.

1. Pass Recognised Preliminary before apprenticeship.
2. Four years' apprenticeship in a pharmacy.
3. Courses, in an approved institution, of three months in (a) Theoretical Chemistry, (b) Botany and Materia Medica, (c) Practical Chemistry.
4. Pass Pharmaceutical Licence Examination after 21.

R.D.

1. Serve four years as assistant or apprentice.
2. Pass Registered Druggist Examination.

Pharmaceutical Assistants

As for L. P. S. I., but need not be 21, nor have taken courses of instruction.

Pharmaceutical Licence

The qualifying examination for pharmaceutical chemist in Ireland is that of Licentiate. The conditions to be fulfilled before entering upon the Pharmaceutical Licence examinations are:—

(a) After preliminary registration the person must serve four years as apprentice or assistant with, and in the sole employment of, a pharmaceutical chemist, or a chemist and druggist, of Great Britain, or an apothecary, or a firm of legally qualified pharmaceutical chemists, chemists and druggists of Great Britain, or apothecaries *in an open shop*, and the candidate must spend the business day with his employer. (Provision is made for service with more than one employer, and, for those who have served four years with a chemist and druggist or registered druggist in Ireland, two years' further service with a pharmaceutical chemist or an apothecary suffices.)

(b) Attend three-months' courses of lectures in theoretical chemistry and in botany and materia medica, and a three-months' course of practical chemistry (after the lectures in theory) at one or other of the following approved institutions:

School of the Pharmaceutical Society of Ireland.
School of the Pharmaceutical Society of Great Britain.
Central Technical Institute, Waterford.
Municipal Technical School, Ballymena.
Municipal Technical School, Londonderry.
Municipal Technical School, Drogheda.
Municipal Technical Institute, Limerick.
Central Technical Institute, Limerick.
Cecilia Street School of Medicine, Dublin.
City of Dublin Technical Schools.
Government School of Science, South Kensington.
Queen's University, Belfast.
Queen's University, Cork.
Queen's University, Galway.
Royal College of Science for Ireland, Dublin.
Royal College of Surgeons in Ireland, Dublin.
School of Physic, Trinity College, Dublin.
The Anderson College of Medicine, Glasgow.
Royal Academic Institution, Belfast.
The Municipal Technical Institute, Belfast.
Mr. Templeton's School of Scientific Method and Chemistry, Belfast.
Crawford Municipal Technical Institute, Cork.

Some of these are approved for all the subjects, others for theoretical chemistry only.

(c) The person must be twenty-one years of age.
(d) Declarations and certificates of the foregoing must be lodged with the Registrar when the candidate applies for entry to the Licence examination.

The examination commences on the second Wednesday of January, April, July and October, at 10 a.m., and is held in the Pharmaceutical Society's House, Dublin. Candidates must give notice of intention to attend, to the Registrar, fourteen clear days before the date of the examination, and this must be accompanied by a receipt of having paid the fee (£10 10s.) into the Bank of Ireland to the credit of the Society. The necessary forms should be procured well in advance. The re-examination fee is £4 4s. The examination, which is written, practical and oral, is in the following subjects:—

BOTANY: Recognition of the principal indigenous plants used in medicine, their natural orders, and the characters of their several parts.

MATERIA MEDICA: Recognition of B.P. drugs; their characters, active principles, sources, official preparations, and adulterations.

CHEMISTRY: Elementary laws of chemistry and physics, including equations. Recognition of B.P. chemicals, description of the processes by which they are obtained, qualitative analysis (including B.P. tests) and volumetric analysis, and a practical examination in these subjects. (The Council recommends Corbyn and Stewart's "Physics and Chemistry.")

PRACTICAL PHARMACY: Translation of Latin prescriptions, detection of dangerous doses, and compounding and dispensing. Processes of making and recognition of B.P. non-chemical preparations, and an intimate knowledge of the Sale of Poisons (Ireland) Act, 1870.

Assistants to Pharmaceutical Chemists

This examination, instituted as a qualification for assistants left temporarily in charge of the business of a pharmaceutical chemist, is held quarterly; being on the Saturday following the examination for the Pharmaceutical Licence. This permits candidates "referred" at the latter examination to enter for the assistants' examination on payment of a fee of £1 1s. New candidates pay, in addition, a registration-fee of £1 1s. The re-examination-fee is £1 1s. The conditions are similar to those of the Licence examination, but the candidate need not be twenty-one years of age, nor have taken a special course of instruction. The subjects are prescription-reading and translation, including the detection of unusual doses, practical dispensing, materia medica, pharmacy, including recognition of non-chemical pharmacopœial preparations and a knowledge of the proportions of active ingredients in these, and the laws relating to the sale of poisons in Ireland.

Registered Druggists

This is a statutory grade of sellers of poison, who are not, however, qualified as dispensers of prescriptions. The subjects of the examination are prescribed by the Pharmacy Act (Ireland) Amendment Act, 1890, and are as follows:—

English orthography and composition.

Arithmetic and the weights and measures of the British Pharmacopœia.

The appearance of properties of the various drugs and chemicals in general use.

The Sale of Poisons (Ireland) Act.

The examination is open to anyone who has served as an assistant or apprentice for not less than four years to a pharmaceutical chemist, chemist and druggist, registered druggist, or licentiate apothecary keeping open shop, and is held in Dublin and Belfast (if twelve candidates apply) on the second Tuesday of January, April, July and October. Applications for admission, accompanied by the necessary declarations of service and a receipt for £4 4s. (examination-fee £2 2s., and registration-fee £2 2s.) placed to the credit of the Society in the Bank of Ireland, must be made to the Registrar at least fourteen days before the dates of the examinations. The re-examination fee is £2 2s.

Copies of examination papers are published in the Society's "Calendar" (4s. 4d.) post free, from the Registrar, or are supplied separately at 1s. 7½d. each year, post free.

Irish Educational Institutions

Pharmaceutical Society's Schools

67 Lower Mount Street, Dublin

Director: Chemistry School, Professor H. Norminton, M.Sc. Botany and Materia Medica School, W. H. Ashmore, Ph.C., and P. O'Connor, B.Sc., A.R.C.Sci.I. There are three sessions, commencing on the first day in October, January, and April. The fees for courses to meet the Society's regulations are: Theoretical chemistry (three months), £1 11s. 6d.; practical chemistry (six months), £8 8s.; practice course (three months), past students, £2 2s.; students of other schools, £4 4s.; botany and materia medica (three months), £3 3s. The theoretical chemistry class is held on Tuesday and Thursday evenings, and the practical chemistry class on Monday, Wednesday, and Friday evenings. A day class for practical chemistry (three months) begins in April, fee £8 8s.; also a day practice course. The botany and materia medica classes are held on Tuesday and Thursday evenings with occasional Saturday demonstrations. The chemistry (day) course is recognised by the Royal Colleges of Physicians and Surgeons in Ireland. Book prizes are offered for competition each session in each class.

Belfast, Municipal College of Technology

Head of Chemistry Department: Professor H. Wren, D.Sc. Lecturer in Materia Medica and Pharmaceutical Botany: T. Harper, M.P.S.I.

The Pharmaceutical Section of the Pure and Applied Chemistry Department provides courses in chemistry, botany, materia medica, and pharmacy (evenings). Fees: 7s. 6d. to 12s. 6d. per subject per session.

School of Scientific Method and Chemistry

The Gables, Botanic Avenue, Belfast

Principal: S. Templeton, Assoc. R.C.S., F.I.C.

Day and evening courses, to meet the requirements of the Pharmaceutical Society's Licence examination, begin on September 1. The fee for a full course, which may be taken in one session (seven months) or spread over a longer period, if desired, is £12 12s., and the fees per subject are: Theoretical chemistry, £2 2s.; practical chemistry, £6 6s.; botany, £2 2s.; materia medica, £2 2s.; pharmacy, £2 2s. A full-time course is also conducted, fee £10 10s. per quarter.

Apothecaries' Assistants

According to Section V. of the Apothecaries Act, 1815, if apothecaries refuse to compound or unfaithfully compound physicians' prescriptions, they are liable to penalty. To help the apothecaries in this work of dispensing, Section XVII. enacted that an examination should be instituted for the purpose of granting certificates to persons "to act as an assistant to any apothecary." The conditions of entrance to the examinations are as follows:—

(a) The candidate (male or female) must be at least eighteen years of age. (b) A certificate of general education up to the age of sixteen must be produced. (c) A certificate signed by an apothecary's assistant holding a public appointment, a registered chemist and druggist, or a registered medical practitioner, showing that instruction in practical pharmacy has been taken for 200 hours and practical work done for nine months, must be produced. (d) The candidate must pass an examination in (1) compounding and dispensing medicines, (2) chemistry, materia medica and pharmacy, and prescription-reading.

The examination takes place in January, April, July and October, and is entirely practical and oral. The fee is £5 5s., re-examination fee £3 3s. Particulars can be obtained from Mr. Frank Haydon, L.R.C.P., Secretary to the Court of Examiners, Apothecaries' Hall, Blackfriars, London, E.C. 4.

Similar powers to examine and grant certificates to assistants are possessed by the Apothecaries' Hall of Ireland, 95 Merrion Square, Dublin.

Scholarships and Prizes

Students of pharmacy may compete for several scholarships and prizes, the training for which is not without benefit, even to the unsuccessful candidates.

THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN offers annually three medals for competition by pharmaceutical chemists who have passed the Major examination during the year. The competitive examination is in materia medica, botany, and chemistry, and is held shortly after the Major examination in April. The Registrar informs each person entitled to compete. The first prize is the Pereira Silver Medal and £5 worth of books; second, the Society's Silver Medal; and third, the Society's Bronze Medal. The Society also has in its gift the following scholarships:—

Manchester Pharmaceutical Association Scholarship is open to student-associates of the Pharmaceutical Society who have been engaged for not less than three years in the pharmacy of a pharmaceutical chemist or a chemist and druggist in Lancashire, Cheshire, or the High Peak Parliamentary Division of Derbyshire. It has an annual value of £34.

Herbarium Prizes.—The Pharmaceutical Society of Great Britain offers annually to its student-associates a silver medal, a bronze medal, and certificates of honour for a herbarium of British plants collected in any part of the United Kingdom, the Channel Islands, or the Isle of Man between January 1 in one year and July 1 in the year following. Particulars can be obtained from Sir William Glyn-Jones, 17, Bloomsbury Square, London, W.C.

Jacob Bell Scholarships.—Two scholarships are offered annually by the Pharmaceutical Society of Great Britain as a memorial of Jacob Bell, its originator. The award comprises free education at the Society's School and £25 in cash, with a gift of books. The scholarships are open only to student-associates of the Society not less than twenty or more than twenty-two years of age. Application for admission must be made to Sir William Glyn-Jones, 17, Bloomsbury Square, London, W.C.

The Petrie Trust Bursary, of the annual value of £16 to £20, is awarded each year to a student-associate of the Society who has completed three years' apprenticeship in the city or county of Aberdeen. Particulars may be obtained from the Secretary of the Aberdeen Pharmaceutical Association.

The Ransom Research Fellowship, valued about £100, was founded in 1917 to promote the investigation of crude drugs, and is awarded to a pharmaceutical chemist, who must for twelve months work under the direction of the Council in the Research Laboratory or the Museums of the Society. The Fellowship may be renewed for one or two more years at the discretion of the Council.

The Redwood Scholarship of the value of about £60 in cash, awarded every second year to a pharmaceutical chemist to pursue work in the Society's research laboratory.

The Burroughs Scholarship of about £50 every second year for a similar purpose.

The Charles James Hewlett Memorial Exhibition is of the value of about £15, and is awarded annually on the recommendation of the professors of the Pharmaceutical Society's School to the student (other than a Bell scholar) who most distinguishes himself during attendance at the elementary course. The present holder is Charles Albert McClosky.

Harrison Memorial Medal.—The first award will be made in July, 1923, for the paper, by a registered chemist and druggist of not more than five years' standing, deemed to be the most important contribution to the chemistry of drugs during the year ending June 30, 1923. The medallist will also receive a prize of books or apparatus. Applications must be sent to the Secretary of the Adjudicating Committee not later than July 14, 1923, together with the papers to be considered or references to contributions published during the year.

THE PHARMACEUTICAL SOCIETY OF IRELAND.—The Council awards annually a gold and a silver medal to pharmaceutical chemists who have during the year passed the

Licence examination on a first attempt and obtained the following standard of marks: For the gold medal, not less than 240 marks out of 300, and sixty-five in each of the three subjects; for the silver medal, 230 marks out of 300, and sixty in each of the three subjects.

THE CHEMISTS' AND DRUGGISTS' SOCIETY OF IRELAND.—The Haslett Gold Medal, which was presented by the late Sir James Haslett, M.P., is awarded annually to the student who takes the highest place at the Registered Druggists' examination.

THE FAIRCHILD SCHOLARSHIP, which was founded in 1904 by Fairchild Bros. and Foster, was suspended after the 1916 examinations owing to the war conditions. In May, 1922, Col. S. W. Fairchild visited England, and expressed his desire to resuscitate the scholarship. Mr. Herbert Skinner, Ph.C., was asked to act as the secretary to the trustees, all of whom are continuing. The changes likely to arise from the curriculum of the Pharmaceutical Society were considered by the trustees not to be sufficiently advanced to warrant any change in the conditions of the scholarship for the ensuing year. The value of the scholarship is £50, and, in addition, there are prizes of £5 for the best student in England, Scotland, Wales and Ireland, apart from the scholarship. The examinations take place during June, and entries should be made on, or before, June 1. The examinations are held at London, Manchester, Edinburgh, Cardiff and Belfast, the amount over 5s. railway fare being refunded if application is made to the Secretary. The age limit is no less than 20 years on July 1, 1923, or over 22 on January 1, 1923, and all competitors must be registered students or apprentices of pharmacy. The successful student must commence his studies within the year after winning the scholarship. The subjects are: Elementary chemistry; elementary materia medica; practical pharmacy and prescription reading; elementary business knowledge. The trustees are Mr. Peter Boa, Edinburgh; Mr. Albert Hagon, Cardiff; Mr. William Kirkby, Manchester; Mr. A. J. Phillips, London; Mr. W. F. Wells, Dublin. All communications should be addressed to the Secretary to the Trustees, Mr. Herbert Skinner, Albert Chambers, 64-65, Holborn Viaduct, London, E.C. A prospectus will be sent to every secretary of an association shortly, and will also be ready for applicants.

"CORNER FOR STUDENTS" PRIZES.—THE CHEMIST AND DRUGGIST conducts a monthly competition in qualitative chemical analysis. This section of THE CHEMIST AND DRUGGIST has for upwards of fifty years afforded students a means of testing their progress in qualitative chemical analysis. Two book prizes are awarded monthly. A tournament is conducted throughout the winter session, the marks each month being registered, and the three competitors who receive the highest number are awarded parchment certificates and book prizes to the value of £3 3s., £1 11s. 6d., and 15s.

The next series of competitions commences in October. A fuller announcement will be made in due course.

Degrees in Pharmacy

Science degrees in pharmacy are conferred by the Universities of Glasgow and Manchester, but they do not appear to have been attractive to pharmacists. In Manchester, for the B.Sc. (Pharm.) degree, candidates must first pass the University Matriculation examination. The course of instruction extends over three years preparing the student for the Qualifying and Major examinations and graduation. Full particulars may be obtained from the Pharmaceutical Dept., University of Manchester. In Glasgow, candidates must first pass the Preliminary examination. In not less than three academical years they must attend at least seven courses of instruction, of which four must be taken in the University of Glasgow. Before entering for the Final Science examination candidates must already be registered chemists and druggists. The Regulations may be obtained from J. Maclehoose & Sons, 61, St. Vincent Street, Glasgow.

Medicine

A tendency to endow the medical profession has been observable in modern legislation. The National Health Insurance Act, the Venereal Disease Act, and the Dangerous Drugs Act are cases in point. "Added opportunities," says a medical journal, "now make the ambition to become a doctor more easily realisable. . . . Nor is the career any longer the pecuniary adventure that it was. . . . The National Insurance Act . . . has undoubtedly stabilised general practice in many directions. Obviously it has done away with the need to possess any large capital sum of money before embarking upon private practice. . . ." In addition, few vocations offer so wide a choice of career as the medical profession. The newly qualified man may decide to enter the Army, the Navy, the Air Force, or one of the Colonial services; he may become a medical officer of health, a school officer, or a prison doctor; he may specialise in some branch of medicine or surgery; he may elect to accept an appointment in a hospital, on a ship, or in the mission-field; or he may follow the majority by engaging in general practice.

The regulation of conditions for admission to the Medical Register is entrusted by law to the General Medical Council, which, by Sections 18 and 20 of the Medical Act, 1853, is empowered to require information from colleges and other bodies as to courses of study and examinations, and to report any deficiencies (or apparent deficiencies) to the Privy Council. The functions of the General Medical Council also include the duty of removing from the Register any practitioner adjudged guilty of conduct "infamous in a professional respect." Candidates for the profession are required to possess, at the outset, a general education of the standard needed for matriculation in arts or science at a British university, and, after registration as medical students, to take a course of study and training, extending on the average to five years, at a recognised institution. Examinations are held at intervals during the curriculum, so that the subjects to be mastered may be disposed of a few at a time. There are two types of medical qualification. One is the degrees bestowed by the universities: the other is the diplomas bestowed by such bodies as the Royal Colleges of Physicians and Surgeons.

Preliminary Examinations

The education committee of the General Medical Council issues a list of examining bodies the examinations of which in general education fulfil the conditions laid down by the Council as to admission as a medical student (see "Registration as Medical Students"). These examinations include (1) the final arts or science degree examination of any university of the United Kingdom or of the British Dominions; (2) the matriculation examination of any university in Great Britain or of the Queen's University, Belfast; (3) a number of school and other examinations accepted by approved universities as equivalent to their respective matriculation examinations. On and after January 1, 1923, the following regulations will be in force:

(1) Before registration as a student every candidate shall produce evidence that he has attained the age of seventeen years.

(2) The minimum standard of general education required will be that of University matriculation or entrance examination in arts or pure science.

(3) Before registration as a student every applicant shall be required to have passed an approved examination in general education, and, in addition thereto, an examination in elementary physics and elementary chemistry conducted or recognised by one of the licensing bodies.

(4) A student who has diligently attended an approved course of instruction in elementary biology at a secondary school or other teaching institution recognised by a licensing body may be admitted to the Professional examination in elementary biology immediately after his registration as a student.

Any preliminary examination recognised as from January 1, 1923, must include: (1) English. (2) Elementary mathematics. (3) A language other than English. (4) An additional subject or subjects, as required by the regulations of the particular examination, to be

chosen from the subjoined list, viz.: History, geography, physical science, natural science, Latin, Greek, Hebrew, French, German, or other language accepted by the University for the purpose. A Joint Matriculation Board (Secretary, 315 Oxford Road, Manchester) governs the Matriculation examinations of the Universities of Manchester, Liverpool, Leeds, Birmingham, and Sheffield. The College of Preceptors, Bloomsbury Square, London, W.C.1, holds in March and September of every year, at various centres in Great Britain, a Professional Preliminary examination for certificates recognised by the General Medical Council and other bodies. It should be borne in mind that the subjects which are compulsory and those which are optional differ to some extent in the requirements of the various universities and other qualifying bodies; consequently, the candidate must either matriculate at the university at which he or she intends to study or ascertain that the Preliminary examination certificate held is one that will be accepted.

Registration as Medical Students

The way of entrance to the medical profession is laid down in "Regulations of the General Medical Council in regard to the Registration of Medical and Dental Students" (Constable & Co., Ltd., 10 Orange Street, London, W.C.2, 1s.; Spottiswoode, Ballantyne & Co., Ltd., New Street Square, London, E.C.4, 1s.). The applicant must (1) have attained the age of sixteen years (on and after January 1, 1923, seventeen years), (2) have passed a recognised preliminary examination, and (3) produce evidence of having commenced medical study at an approved institution. The commencement of the course of professional study recognised by any of the licensing bodies should not be reckoned as dating earlier than fifteen days before the date of registration. The Registrars to whom, according to the division of the United Kingdom in which the student is training, application must be made for registration are:

The Registrar of the General Medical Council, 44 Hallam Street, Portland Place, London, W.1.

The Registrar of the Scottish Branch Council, 20 Queen Street, Edinburgh.

The Registrar of the Irish Branch Council, 35 Dawson Street, Dublin.

The General Medical Council enjoins that in every course of professional study and examination, which must occupy not less than five academic years, the following subjects shall be comprised:

(1) *Elements of General Biology*, including practical work and an introduction to the study of embryology; (2) *Chemistry, Physics, and Biology* in their application to medicine; (3) *Human Anatomy and Human Physiology*, including dissection, histology, elements of human embryology, biochemistry and bio-physics; (4) *Elementary Bacteriology*; (5) *Pathology*; (6) *Pharmacology and Materia Medica*, including pharmacological chemistry; (7) *Forensic Medicine, Hygiene, and Public Health*; (8) *Medicine*, including applied anatomy and physiology, clinical pathology, and therapeutics; (9) *Surgery*, including applied anatomy and physiology, and clinical pathology; (10) *Midwifery and Diseases of Women*.

A few bodies allow medical studies to be commenced at approved teaching institutions other than medical schools, and this principle is extended to graduates in Arts or Science at approved universities. No general exemption of this kind is given to registered chemists and druggists except as regards training in practical pharmacy. The preliminary examination must have been of the standard given in the regulations, but the colleges and universities consider applications for exemption from any part of the medical examinations when such subjects as chemistry and biology have been taken at recognised institutions. Each examining body issues regulations as to the studies required, and the schools of medicine arrange their courses in conformance with such requirements.

University Degrees

In the following paragraphs we indicate concisely the conditions framed by the universities of the places named for degrees in medicine and surgery (M.B., Ch.B., or the equivalent degrees).

ABERDEEN.—The degrees are conferred together, and cannot be taken separately. The curriculum extends over a period of not less than five years, during three years of which the candidate must attend at a recognised hospital. The fee for the two degrees is £34 13s., payable in four instalments. Bursaries, scholarships and fellowships to the annual value of over £1,180 are obtainable. Regulations may be seen in the calendar of the University, or may be obtained from the secretary.

BELFAST.—Three academic years at least, out of the five prescribed for the curriculum, must be passed in the University. The examination-fees amount to £18 18s. The Dean of the Faculty of Medicine is Professor W. St. C. Symmers.

BIRMINGHAM.—The course extends over five years, and there are five examinations, the fees for which, together with the fee for matriculation, amount to £22. Several scholarships are available. As a rule, the first four years of the course must be spent in the University, the minimum being three years. Dean of the Faculty of Medicine, Mr. W. F. Haslam, M.B., University Medical Buildings, Edmund Street.

BRISTOL.—There are three examinations, the total fees for qualifying (including matriculation) amounting to £28 7s. The curriculum occupies five years and a half. Particulars of scholarships and prizes are given in the University (Faculty of Medicine) prospectus. Registrar, Mr. J. Rafter, M.A.

CAMBRIDGE.—Students who have not graduated in Arts are required to pass the Previous examination or its equivalent before proceeding to the three examinations for the M.B. degree. The respective fees for these three examinations are £4 4s., £4 4s., and £10 10s. Five years is the period of study prescribed. A thesis must be composed by each candidate, and must be publicly read (or such portion of it as the Regius Professor shall direct) by the author. There is no separate examination for the B.Ch. degree. The Registrar is Mr. J. N. Keynes, Sc.D., Pembroke College.

DUBLIN.—Candidates for the degrees in medicines, surgery and obstetric science must be of B.A. standing and must have completed five years in medical studies. The fees for the licences amount to £17. Registrar, Dr. A. C. O'Sullivan, Trinity College.

DURHAM.—There are four examinations for the M.B., B.S., degrees, and the course of study extends over five years. The fees for matriculation and examination amount to £32. There are numerous scholarships. Full information may be obtained from the Registrar, University of Durham College of Medicine, Newcastle-upon-Tyne.

EDINBURGH.—The course for the degrees of M.B. and Ch.B., which are not conferred separately, extends over five years, clinical study at a recognised hospital for nine months being compulsory. Candidates must also attend for three years at a recognised hospital accommodating not fewer than eighty patients, and for not less than two years at the University. There are four examinations, the fees amounting to £34 13s. Several scholarships, bursaries and prizes are offered for competition. Dean of the Faculty of Medicine, Professor Lorrain Smith, M.D.

GLASGOW.—There are four examinations. The period of study prescribed is five years, two of which must be spent at the University. The fees for the degrees of M.B., Ch.B., amount to £34 13s. Several bursaries and prizes are open to competition. The Dean and Adviser of Studies is Professor E. P. Cathcart, M.D., University of Glasgow.

IRELAND.—The National University of Ireland confers the M.B., B.Ch., and B.A.O. degrees (simultaneously) after passing four examinations during a minimum period of five years' study. Particulars may be obtained from the Registrar, National University, Dublin.

LEEDS.—There are three examinations, and the course of study extends over five years. Attendance at an approved hospital for at least two-and-a-half years is obligatory. The examination-fees amount to £20. Dean of the Faculty of Medicine, Professor J. K. Jamieson, M.B., C.M.; Secretary of the University, Mr. A. E. Wheeler.

LIVERPOOL.—The curriculum extends over five years, two of which must be passed in the University. There are three examinations, with a fee of £5 each, and an admission-fee of £5. Several fellowship, scholarships and prizes are available. Dean of the Faculty, Dr. R. E. Kelly.

LONDON.—The normal course of study extends over five and a-half years, and there are three examinations. The examination-fees for the double degree amount to £31 10s. A large number of institutions in the United Kingdom and the Colonies is recognised for teaching and giving certificates, and various concessions are granted in respect of examinations already passed at recognised institutions. Internal and external students should apply respectively

to the Academic Registrar and the External Registrar, University of London, South Kensington, S.W.7.

MANCHESTER.—Four examinations, extending over five years, must be passed. Two years must be passed in the University. The fees for the four examinations and the degrees amount to £42. Several scholarships, exhibitions and other competitive prizes are offered to students. Full information is obtainable from Professor Wild, Dean of the Medical Faculty.

OXFORD.—The regulations stipulate that candidates must hold the B.A. degree as a prerequisite. Two examinations are held for the degree of B.M.; the degree of B.Ch. is granted with that of B.M. after passing the second examination. The Registrar of the University is Mr. C. Leudesdorf, M.A., Pembroke College; and the examination statutes are published by the Clarendon Press.

ST. ANDREWS.—The course for the M.B., Ch.B. degrees (which are not separable) extends over at least five years; of this period, two years must be spent in attendance at the University. The nature of the studies as a whole is laid down in the prospectus of the Faculty of Medicine. There are four examinations, the fees amounting to £23 2s. Dean of the Faculty, Professor James Charteris, M.D., Medical School, Dundee.

SHEFFIELD.—There are four examinations for the M.B., Ch.B. degrees, the examination-fees (payable in three instalments) amounting (according to the calendar of the University) to £20. Candidates who are referred in the Final examination must produce evidence of having received subsequent instruction satisfactory to the Faculty before entering for re-examination. Several scholarships are available. Dean of the Faculty, Professor J. B. Leathes, M.B.; Registrar of the University, Mr. W. M. Gibbons, M.A.

WALES.—The course of study must extend over six years, at least three years of which must be passed in one of the constituent colleges—Aberystwyth, Bangor, Cardiff, and Swansea. Qualification involves the possession of the science or arts degree of an approved university, as well as passing the necessary examinations. Apply to the Registrar, University Registry, Cathays Park, Cardiff.

To qualify as a MEDICAL PRACTITIONER

- (1) Pass a recognised preliminary examination.
- (2) Produce evidence of having commenced study at an approved institution, and be registered as a student by one of the Registrars of the General Medical Council.
- (3) During a curriculum of not less than five years, pass, at proper intervals, the necessary examinations—three or more.

Medical and Surgical Diplomas

M.R.C.S. ENG. AND L.R.C.P. LOND.

The Royal College of Physicians of London and the Royal College of Surgeons of England (known as "the Conjoint Board") grant a joint diploma (the "Double Qual.") for registration as a general medical practitioner. There are three professional examinations during the five years' curriculum subsequent to registration as a medical student.

First Professional Examination is in chemistry, physics, and elementary biology, and it may be taken, on production of certain certificates, immediately after passing the Preliminary examination. Candidates must adduce evidence of having received instruction in all these subjects. Six months' instruction in these subjects, taken at a recognised institution other than a medical school, will be counted as part of the Professional curriculum if it is taken subsequent to passing the Preliminary examination. The fee for the whole examination is £10 10s.

Second Professional Examination is in (1) anatomy and physiology, and (2) materia medica and pharmacology, and both parts may be passed at one time. Evidence must be produced that the candidate has spent twelve months in dissecting the whole of the human body, has attended courses of lectures in anatomy and physiology, and has received practical instruction in physiology, histology, pharmacology, and practical pharmacy. The fee for the second examination is £10 10s.

Third or Final Examination.—The subjects are: (1) Medicine, including medical anatomy, pathology, therapeutics, forensic medicine, and public health; (2) surgery, including pathology, surgical anatomy, and the use of surgical appliances; (3) midwifery and diseases peculiar to women. Before admission, the candidate must produce evidence that he has attended the specified portion of study laid down in the curriculum as set forth in the official regulations. He must also have received instruction in the administration of anaesthetics, have conducted labours, and have attended such institutions as a fever hospital and a lunatic asylum. The Final examination cannot be completed before the expiration of five winter and five summer sessions from the date of passing the Preliminary examination. The fee is £21.

Special regulations are provided for cases in which students have passed examinations in certain subjects elsewhere. New regulations, in accordance with certain changes referred to in a previous section, come into force on January 1, 1923. Synopsis of the examinations can be obtained from the Secretary of the Conjoint Board, 8-11, Queen Square, Bloomsbury, London, W.C.1.

SCOTTISH TRIPLE QUALIFICATION

The Royal Colleges of Physicians and Surgeons of Edinburgh, with the Royal Faculty of Physicians and Surgeons, Glasgow, grant three diplomas ("Triple Qual.") jointly entitling the holder to registration as a general medical practitioner. The four examinations are held in Edinburgh, Glasgow, or both cities. The course of study must occupy not less than five years, and the examination-fees amount to £30. Full particulars may be obtained from Mr. D. L. Eadie, 49 Lauriston Place, Edinburgh, or Mr. W. Hurst, 242 St. Vincent Street, Glasgow.

IRISH DOUBLE QUALIFICATION

The Royal College of Physicians of Ireland and the Royal College of Surgeons in Ireland grant a registrable diploma after examinations in Dublin by their Conjoint Board. The professional examinations, four in number, bear fees amounting to £42. The final examination cannot be concluded until the end of the fifth year of study. A syllabus may be obtained on application to Mr. Alfred Miller, Royal College of Surgeons, Stephen's Green, Dublin.

LONDON APOTHECARIES' DIPLOMA

The Society of Apothecaries of London grants a diploma (L.M.S.S.A.) in medicine, surgery, and midwifery. There are two examinations, Primary and Final, and the course of study extends over five years. The fee for the Primary examination is £5 5s.; for the Final examination a fee of £21 is payable, but a reduction is made if a fee of £5 5s. has been paid for the Primary examination. Application may be made to Mr. Frank Haydon, L.R.C.P., Lond., Secretary, Society of Apothecaries of London, Water Lane, E.C.4.

DUBLIN APOTHECARIES' DIPLOMA

The Apothecaries' Hall of Ireland grants a diploma (L.A.H.) to candidates who pass the requisite examinations, the fees for which amount to £42, exclusive of the diploma-fee of £5 5s. Particulars may be obtained from the Registrar of the Apothecaries' Hall, 95 Merrion Square.

Medical Schools

The following are the principal medical schools in the United Kingdom:

LONDON

The following medical schools are constituents of the London University:

Charing Cross Hospital Medical, Chandos Street, W.C.2.—Dean, Dr. W. J. Fenton; Secretary, Mr. F. Noakes.

Guy's Hospital, London Bridge, S.E. 1.—The fees for a five-years' course, as given in the prospectus, amount to approximately £245. Several scholarships are obtainable by students, and a residential college (facing the hospital) is open for those who desire such accommodation. Communications should be addressed to the Dean of the School.

King's College, Faculty of Science, Medical Division, Strand, W.C. 2.—Students are prepared for the first two medical examinations of the University of London or other universities, or the first two of the Conjoint Board. Fees may be paid terminally, or a composition-fee for a three-years' course may be paid in advance. Dean of the Faculty, Professor E. Barclay-Smith, M.D.; Secretary of the College, Mr. S. T. Shovelton, M.A.

King's College Hospital Medical School, Denmark Hill, S.E. 5.—Several scholarships and prizes are available through examination. Dean, Dr. H. Willoughby Lyle. The School calendar, giving particulars as to fees, may be obtained on application to the Secretary, Mr. S. C. Ranner, M.A.

London Hospital Medical College, Turner Street, E. 1.—Entrance-fee, £21; annual fee, £42. Several scholarships and prizes are open to competition. Dean, Professor W. Wright, D.Sc.; Secretary, Mr. E. J. Burdon.

London (Royal Free Hospital) School of Medicine for Women, Hunter Street, W.C. 1.—Composition-fee (payable in five instalments) for the University of London degrees or the Conjoint Board qualification, £240. Dean, Miss Aldrich-Blake, M.D., M.S. A list of scholarships and other particulars may be obtained from the Warden and Secretary, Miss L. M. Brooks.

Middlesex Hospital, Union Street, W. 1.—The school, which includes the Bland-Sutton Institute of Pathology and the cancer-research laboratories, is fully equipped for teaching the entire medical curriculum; special courses are given in the higher degrees and diplomas, particularly the F.R.C.S. Eng. and diplomas in Public Health. Special attention is given to the co-ordination of the work in the laboratories with that in the wards. Fees: Entrance-fee, £15 15s.; four annual instalments of £42; thereafter at the rate of £21 per annum until qualified. Scholarships and prizes exceeding in all £1,000 are awarded annually. An illustrated prospectus may be obtained, on application, from the Dean of the School, Mr. A. E. Webb-Johnson, M.B., F.R.C.S.

St. Bartholomew's Hospital and College, Smithfield, E.C. 1.—Composition-fee, £231 (or five annual instalments of £50 3s. each). The total value of the scholarships and prizes awarded annually is over £900. Dean, Dr. T. W. Shore.

St. George's Hospital, Hyde Park Corner, S.W. 1.—Annual composition-fee for the first three years, £36 15s.; for the fourth and fifth years, £42. Entrance-fee for fourth to fifth-year students, £10 10s. Courses for the first and second Professional examinations are taken at University College or King's College. Entrance-scholarships are awarded annually. Dean, Mr. R. R. James.

St. Mary's Hospital Medical School, Cambridge Place, W. 2.—Composition-fee for the curriculum (time-limit 5 years), £200—if paid in four instalments, £210. Five entrance scholarships, together with several studentships and prizes are awarded annually. Clinical units in medicine and surgery were established in 1920, and have been recognised by the Government. Dean, Dr. C. M. Wilson; Secretary, Mr. B. E. Matthews, B.A.

St. Thomas's Hospital Medical School, Albert Embankment, S.E. 1.—There are five entrance scholarships; other prizes are open for competition throughout the student's career. The cost of qualifying as M.B., B.S. in the University of London is given in the prospectus as £280 19s. 6d. Further information may be obtained from the Secretary, Dr. A. Elliot.

University College Hospital Medical School, Gower Street, W.C. 1.—The composition-fees for courses for the first and second degree or Conjoint Board examinations amount to £120 15s. Several scholarships and exhibitions are offered by competition. A new chair of embryology and histology has been instituted. Dean, Dr. G. F. Blacher; Secretary, Mr. G. E. Adams.

Westminster Hospital Medical School, 12, Caxton Street, S.W. 1.—Entrance-fee, £10 10s.; annual composition-fee, £36 15s. Scholarships and prizes are awarded over a considerable period of the curriculum. Preliminary and intermediate studies are usually taken at King's College. Dean, Mr. A. S. Woodwark.

OUTSIDE LONDON.

ABERDEEN.—*University Faculty of Medicine*.—The total cost of obtaining the M.B., Ch.B. degrees is estimated at £248, comprising hospital-fees, class-fees, and degree-fee. Clinical study is available at the Royal Infirmary and other local institutions. Scholarships and bursaries are open to competition. Applicants should communicate with the Secretary, Entrance Board, 81, North Street.

BELFAST.—*Queen's University of Belfast*.—Students are prepared, during a five-years' course, for the degrees of M.B., B.Ch., and B.A.O. The class-fees for the first four years amount to approximately £79. Particulars may be obtained on application to the Secretary to the General Board of Studies.

BIRMINGHAM.—*University Faculty of Medicine*.—The fees for a five-years' course (including examination-fees) are estimated at £197. In addition, the student is required to provide himself with a microscope of approved suitability. Full information is obtainable at the Dean's Office, University Medical Buildings, Edmund Street.

BRISTOL.—*University Faculty of Medicine*.—The inclusive fee for the curriculum is £215 5s., payable in annual instalments. The Faculty also prepares students for the diploma examinations of other licensing bodies; such students are not required to matriculate. Dean, Professor E. Fawcett, M.D.; Registrar, Mr. J. Rafter, M.A.

CAMBRIDGE.—Clinical lectures and practical instruction are given, by arrangement with the University, at Addenbrooke's Hospital. Apply to Mr. J. N. Keynes, Sc.D., the Registry of the University, for particulars as to courses of study.

CARDIFF.—*The University College of South Wales and Monmouthshire* is a constituent college of the University of Wales. Application for particulars of the course of study may be made to the Registrar, University College, Newport Road.

CORK.—*University College* is a constituent college of the National University of Ireland. Particulars as to fees may be obtained from the Registrar of the College, or may be found in the Regulations of the College (Purcell & Co., 124 Patrick Street).

DUBLIN.—*Royal College of Surgeons' Schools of Surgery* (which include the Carmichael and Ledwich Schools) are attached to the Royal College of Surgeons. A syllabus may be obtained from the Registrar, Royal College of Surgeons, Stephen's Green.

School of Physic, Trinity College.—The total cost of qualifying, including examination-fees, is given in the calendar as £146 3s. Registrar, Dr. A. C. O'Sullivan.

University College.—A constituent college of the National University of Ireland.

EDINBURGH.—*University Faculty of Medicine*.—The fees for each subject range from £1 11s. 6d. to £6 6s. per session. A perpetual ticket for practice at the Royal Infirmary costs £12 in one payment, or £12 12s. if paid in instalments. Dean, Professor Lorrain Smith, M.D.

School of Medicine of the Royal Colleges.—The courses of study are suited to University and other qualifications. The minimum cost of education for the Triple Qualification, including examination-fees, is about £170, payable by instalments. Scholarships and bursaries are available by competition. Dean, Dr. W. D. D. Smith, 11, Bristol Place, to whom communications respecting the school should be addressed.

GALWAY.—*University College*.—A constituent college of the National University of Ireland. Dean of the Faculty, Professor Mahon.

GLASGOW.—*The University Faculty of Medicine, including Queen Margaret College*.—Students are recommended to begin their course (five years) in the summer. The division of studies is similar to that adopted at Edinburgh, and the fees are about equal. Dean, Professor Cathcart; Registrar of the University, Mr. A. Morrison.

The Anderson College of Medicine, Dumbarton Road, W. Students are prepared for University and other qualifications. A copy of the College calendar will be sent on receipt of a postcard addressed to the Secretary of the Medical Faculty at the College.

St. Mungo's College, 86 Castle Street. The total fees payable for preparation for a Scottish or English qualification amount to rather more than £100. Secretary, Mr. T. B. Ferguson, 97 West Regent Street.

LEEDS.—*University Faculty of Medicine*.—The composition-fee for the first examination in medicine or dentistry is given in the University calendar as £41. For the remaining terms of study the composition-fee is £174, payable in advance, or £190 if paid in instalments. Dean of the Faculty, Professor J. K. Jamieson; Registrar of the University, Mr. A. E. Wheeler.

LIVERPOOL.—*University Faculty of Medicine*.—The composition-fees for a degree course are estimated in the University Faculty's prospectus at £187 8s. 8d., in addition to examination-fees. Dean of the Faculty, Professor J. S. Macdonald.

MANCHESTER.—*University Faculty of Medicine*.—The composition-fees for the studies for the M.B., Ch.B. degrees (exclusive of examination-fees) are estimated at £275 1s. 6d. Courses are also available for other degrees and diplomas. Particulars will be found in the calendar of the University, or may be obtained on application from Professor Wild, M.D., Dean of the Medical Faculty.

NEWCASTLE-ON-TYNE.—*University of Durham College of Medicine*, Northumberland Road. For particulars of the courses of instruction, apply to Professor Howden, Secretary of the College.

OXFORD.—Courses of practical instruction are given, by arrangement with the University, at Radcliffe Infirmary. Apply to the Registrar of the University (Mr. C. Leudesdorf, M.A.), Pembroke College, for particulars as to the curriculum.

ST. ANDREWS.—*University Faculty of Medicine*.—The inclusive fee for a five-years' course for the M.B., Ch.B. degrees is £136 10s., payable in instalments. Advisers of Studies, Professor J. Charteris, M.D., Dundee; and Professor P. T. Herring, M.D., Bute Medical Buildings, St. Andrews.

SHEFFIELD.—*University Faculty of Medicine*.—A five-years' course is provided for. The composition-fee is given in the calendar as £180, payable in five instalments. Dean, Professor J. B. Leathes, M.B.; Registrar of the University, Mr. W. M. Gibbons, M.A.

THE "DIPLOMA OF HYGIENE" and the "Certificate of Sanitary Studies," authorised by a recent Ministerial decree, have been adopted by the University of Montpellier. Pharmaceutical students possessing fourteen "inscriptions" will be eligible as candidates for either. The classes will be held at the Faculty of Medicine, professors from the Faculties of Pharmacy, Sciences, and Law assisting as required. The fees are 30 fr. for matriculation and library, 100 fr. for practical laboratory work, and 100 fr. for examinations. The "sanitary science certificate" course does not include bacteriology or chemistry, and the laboratory fees are consequently reduced by half.

Dentistry

By Order in Council, Section 1 of the Dentists Act, 1921, prohibiting the practice of dentistry by unregistered persons, comes into force on November 30. Comparatively few chemists in business are affected by the Act, which, although it provides for the registration without examination of certain people practising dentistry, is not likely materially to lessen the value of the qualifications of dental surgeons. The control of the dental profession is now vested in the Dental Board of the United Kingdom, and the distinction between examined and unexamined practitioners will, no doubt, be rigorously maintained. There is a tendency for dental surgeons to obtain a medical diploma in addition to their dental qualification—a wise step, in view of the after-care so often needed in connection with dental operations.

Dental Training

The registration of dental students is regulated (as explained in the preceding paragraph) by the Dental Board of the United Kingdom. The candidate must (1) be not less than sixteen years of age (after January 1, 1923, seventeen years), (2) have passed a recognised Preliminary examination, and (3) have commenced professional study, by pupillage or otherwise. Candidates for a diploma in dental surgery should produce certificates of having been engaged during four years in professional study, and of having received two years' instruction in dental mechanics. (A syllabus for students in dental mechanics is issued by the British Dental Association, 23, Russell Square, London, W.C. 1.) No portion of practical instruction which is taken prior to the date of registration may be reckoned as a portion of the four years of professional study. It is recommended that instruction in dental mechanics be taken at recognised dental hospital and school. If any part of such instruction be taken by the candidate as a pupil with a registered dentist, the time required to be devoted to it shall be at least twice the time required for the corresponding instruction taken at a dental school. It is laid down that on and from January 1, 1923, examination for a degree or licence in dentistry or dental surgery shall include the following subjects:—

(1) *Chemistry, Physics, and Biology*, in their bearing on medicine and dentistry; (2) *Human Anatomy and Physiology*; (3) *General Pathology*, including bacteriology; (4) *Medicine and Surgery*; (5) *Dental Anatomy and Physiology, Dental Pathology, Dental Surgery* (including orthodontics), *Dental Materia Medica and Therapeutics, and Dental Mechanics and Dental Metallurgy*; (6) *Practical Dental Surgery*; (7) *Practical Dental Mechanics and Metallurgy*; (8) *Anæsthetics*, general and local, employed in dental practice.

Women are not admitted, at present, as students to certain of the dental schools and general hospitals. The L.D.S. of the Royal College of Surgeons of England is more valued than a similar qualification obtained elsewhere. The curriculum of the Royal College is at present as follows:—

First Course.—Lectures and practical work in chemistry and physics. These courses need not be completed within a year, nor need they run concurrently; but they will not be counted as part of the four years of professional study unless taken after passing the Preliminary examination. *Preliminary Science examination* in chemistry and physics (that for the M.R.C.S. and L.R.C.P. diploma).

Second Course.—Two years' instruction in mechanical dentistry; lectures on dental metallurgy and dental mechanics, with practical work. *First Professional examination.*—(I) Dental mechanics; (II) dental metallurgy; (III.) (a) general anatomy and physiology; (b) dental anatomy and physiology. Before attempting Part III., students must have taken: (1) At a recognised medical school, anatomy (six months), dissections (three months), physiology, including histology (six months); (2) at a recognised dental school, dental anatomy and physiology, dental histology.

Third Course.—At a medical school: Lectures on surgery and medicine. Practice of surgery and clinical lectures on surgery in a hospital for twelve months. At a dental school and hospital: Dental surgery, practical dental surgery, surgery of the mouth, dental bacteriology, dental materia medica, practical instruction in anæsthetics. Practice of dental surgery in a dental hospital (or the dental

department of a general hospital) for two years. *Second Professional examination.*—(I.) General surgery as pathology; (II.) dental surgery and pathology and practical dental surgery. Before the final subjects are entered for candidates must be twenty-one years old.

The fee for the diploma is £21. Inquiries should be addressed to the Director of Examinations (Mr. F. C. Hallett), Examination Hall, Queen Square, London, W.C. 1. Similar conditions apply to the qualifications of the following colleges:—

ROYAL COLLEGE OF SURGEONS, EDINBURGH.—The course of study must occupy at least four years, and not less than three-fourths of the total number of lectures must be attended. The subjects, which are practically the same as those of the London Royal College of Surgeons, are taken in two examinations. The examination-fees amount to £15 15s. Information may be obtained from Mr. D. I. Eadie, Clerk to the College, 49 Lauriston Place.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW.—Communications should be addressed to the Registrar Faculty Hall, 242, St. Vincent Street.

ROYAL COLLEGE OF SURGEONS IN IRELAND, Stephen's Green, Dublin.—Four years' professional study is required. The Registrar will furnish particulars on application.

University Degrees and Diplomas

BELFAST.—Five years' study is compulsory for students for the degree of B.D.S., and four years' for candidates for the licence diploma. Regulations and other information may be obtained from the secretary to the General Board of Studies, Queen's University.

BIRMINGHAM.—The course for the diploma (L.D.S.) occupies four years, three of which must be University years; that for the B.D.S. degree covers five years. The B.D.S. degree cannot be conferred until twelve months after the diploma (or to an approved body) has been obtained. Dean of the Dental Hospital, Mr. W. T. Madin, B.D.S.; Registrar of the University, Mr. J. H. Costain.

BRISTOL.—The curriculum for the degree extends over five years, with an exemption of a year in favour of students holding an approved certificate in certain subjects. Study for the diploma must occupy four years. There are four examinations for the degree and four for the diploma, the fees amounting respectively to £31 10s. and £23 2s. Registrar, Mr. J. Rafter, M.A.

DUBLIN.—Four years must be spent in study after obtaining the B.A. degree. The examination-fee is £5, and the degree-fee £10. Application for details should be made to the Registrar of the School of Physic, Trinity College, Dublin.

DURHAM.—Four years' professional study and a three-years' pupillage in mechanical dentistry are required before the licence in dental surgery is obtainable. There are four examinations. Particulars may be obtained on application to the Secretary of Examinations, Durham College of Medicine, Newcastle-upon-Tyne.

IRELAND.—The course of study for the B.D.S. degree of the National University of Ireland extends over four years. There are four examinations, and candidates must practise mechanical dentistry for two years. Registrar of the University, Sir Joseph McGrath, LL.D.; constituent colleges, Dublin, Cork and Galway.

LEEDS.—There are three examinations, in addition to a definitely prescribed course of study. The examination- and degree-fees together amount to £22; those for examinations and diploma to £20. Registrar of the University, Mr. A. E. Wheeler.

LIVERPOOL.—There are four examinations for the degree of B.D.S. or for the licence in dental surgery (L.D.S.), the fees amounting to £15. Four years' study is required for the licence, and five years' for the degree. Dean of the Medical Faculty, Professor J. S. Macdonald.

LONDON.—The degree of B.D.S. is conferred after matriculation and four subsequent examinations. For particulars apply to the Academic Registrar (if an internal student), University of London, South Kensington, S.W.7.

MANCHESTER.—The degrees granted are B.D.S., L.D.S. (Manc.), and M.D.S. The examination-fees for the B.D.S. (four examinations) amount to £21. The curriculum extends over five years. The diploma course covers four years, with examination-fees amounting to £14 14s. In-

quiries regarding examinations should be addressed to the Internal Registrar of the University.

St. Andrews.—The University grants a diploma in dentistry (L.D.S.). Fee, £10 10s., payable in four instalments. For particulars apply to the Secretary, University College, Dundee.

Dental Instruction

The following are the chief schools in the United Kingdom for instruction in the science and practice of dentistry:—

LONDON

Charing Cross Hospital Medical School, Chandos Street, W.C.2.—The cost of the curriculum is payable by a composition-fee or in instalments. Secretary, Mr. F. Noakes.

Guy's Hospital School (Dental Department), London Bridge, S.E.1.—Practical training is provided in the hospital. The cost of a four years' course, including examination-fees, is given in the prospectus as £396 6s. 6d. The course can be extended to six years, so as to comprise diplomas or degrees in medicine and surgery. The total cost of this curriculum is estimated at £622 6s. Particulars may be obtained from Professor T. B. Johnston, M.B., Dean of the School.

King's College, Strand, W.C.2.—Composition-fee (including entrance-fee), £54 6s. Dean of the Faculty of Medicine, Professor E. Barclay-Smith, M.A.

King's College Hospital Medical School, Denmark Hill, S.E.5.—Lectures are given in the Department of Odontology during the first half of the winter session. Secretary of the School, Mr. S. C. Ranner, M.A.

London Hospital Dental School, Turner Street, E. 1.—For particulars apply to the Secretary, Mr. E. J. Burdon.

London (Royal Free Hospital) School of Medicine for Women, Hunter Street, W.C.1.

—Composition-fee £90 (payable in two instalments); a reduction of £15 is made in the case of students who have completed courses in chemistry and physics before entering the School. Students can pursue a course in the studies

not taken at the School at either the Royal Dental Hospital of London or the Dental Department of University College Hospital. Dean, Miss L. B. Aldrich-Blake, M.D.; Warden and Secretary, Miss L. M. Brooks.

Middlesex Hospital Medical School, Union Street, W.1.—The hours of lectures and classes are arranged to fit in with courses of instruction at the Royal Dental Hospital of London. The Middlesex School fee for a two-years' course is £63, payable in two annual instalments. Dean, Mr. A. E. Webb-Johnson, M.B.; Secretary, Mr. R. A. Foley.

Royal Dental Hospital of London School of Dental Surgery, Leicester Square, W.C.2.—The cost of the full course, including the fee at a general hospital and examination-fees for the L.D.S. diploma, is estimated at £363. Particulars of several scholarships are given in the Calendar of the School. Dean, Mr. H. Stobie.

St. Bartholomew's Hospital (Dental Department), Smithfield, W.C.1.—Four short courses of demonstrations are given during the School year. Dean of the Medical School, Dr. T. W. Shore.

St. George's Hospital, Hyde Park Corner, S.W.1.—Two annual composition-fees of £21 are charged for hospital practice and courses of lectures on medicine and surgery for the L.D.S. examination. Dean of the Medical School, Mr. R. R. James.

St. Mary's Hospital, Paddington, W.2.—A composition-fee is charged for a two-years' course. Dean of the

Medical School, Dr. C. M. Wilson; Secretary, Mr. B. E. Matthews, B.A.

St. Thomas's Hospital, Albert Embankment, S.E.1.—Special courses of instruction are given for various examinations. Fees are paid annually. Secretary, Dr. A. Elliot.

University College Hospital Dental School, Great Portland Street, W.1.—Composition-fees: Full dental course, £257; six-years' course, comprising dental curriculum and curriculum for the M.R.C.S., L.R.C.P. diplomas, £438. Sub-Dean, Mr. A. B. G. Underwood, M.B., L.D.S.

Westminster Hospital, 12 Caxton Street, S.W. 1.—Fee for general surgical practice and lectures for the R.C.S. dental diploma (payable in advance), £70 (or two payments of £36 each). Special practice and lectures may be obtained at the Royal Dental Hospital (£70) or at University College Hospital Dental School (£40). Dean of the Medical School, Dr. A. S. Woodwark.

OUTSIDE LONDON

BELFAST.—*Queen's University Faculty of Medicine.*—The three terms of the session commence respectively in

October, January and April. Entrance-forms and other information may be obtained by applying to the Secretary to the General Board of Studies.

BIRMINGHAM.—*University*

School of Dentistry.—The courses of instruction qualify for the diplomas in dental surgery of all licensing bodies, as well as for the degrees and diploma of Birmingham University. The cost (including examination fees) of preparation for the B.D.S. degree and the L.D.S. diploma is estimated at £186 12s. and £144 4s. 6d. respectively. Dean of the Dental Hospital, Great Charles Street, Mr. W. T. Madin, B.D.S.

BRISTOL.—*University Faculty of Medicine (Dental Surgery).*—The inclusive cost of the curriculum is estimated at £312 in the case of the degree, and £267 for diploma students. Registrar of the University, Mr. J. Rafter, M.A.

CORK.—*University College.*

—A constituent college of the National University of Ireland. For particulars apply to the Registrar.

DUBLIN.—*School of Dental Science, Trinity College.*—The cost of the course for the degree of B.Dent.Sc., including examination- and degree-fees, is £309 4s. The cost of obtaining the necessary Arts degree (previously) is included in this total. Apply to the Registrar of the School of Physic.

Royal College of Surgeons Schools.—The College grants a diploma in dental surgery. Registrar, Mr. Alfred Miller.

DUNDEE.—*School of Dental Surgery*, 27 South Tay Street. Dean, Mr. W. G. Campbell, M.B., C.M., L.D.S.

EDINBURGH.—*School of Medicine of the Royal Colleges.*—Communications should be addressed to the Dean of the School 11 Bristo Place.

Incorporated Dental Hospital and School, 31 Chambers Street.—Hospital practice and clinical instruction are taken at the Royal Infirmary. The minimum cost of the curriculum and examinations for the R.C.S. Edin. is estimated at £112 4s., plus £85 1s. for mechanical training. Dean of the School, Mr. W. Guy, F.R.C.S., L.D.S.

GLASGOW.—*Incorporated Dental Hospital and School*, 158 Renfrew Street. Communications regarding the School should be addressed to the Dean, 15 Dalhousie Street.

LEEDS.—*Dental Department of the University.*—The composition-fee for the course for the degree of the University is given in the University Calendar as £100 (or £105

TO QUALIFY AS A DENTIST

- (1) Pass a recognised Preliminary examination.
- (2) Register as a student at the Dental Board Office, 44 Hallam Street, London, W. 1. Instruction in mechanical dentistry may be taken prior to registration.
- (3) Take a four years' curriculum as provided in the Regulations.
- (4) Pass, at proper intervals, the requisite examinations for the degree or diploma sought.

if paid in two instalments). Registrar of the University, Mr. A. E. Wheeler.

LIVERPOOL.—University School of Dental Surgery.—Candidates are prepared for the licence (L.D.S. Liverpool), the degree of B.D.S., and the higher degree of M.D.S. The composition-fee for the B.D.S. is £237; that for the L.D.S. (Liverpool) is £192. Director of Dental Education, Professor W. H. Gilmour, M.D.S.

MANCHESTER.—Dental Department of the University.—Students are prepared for one or more of the degrees of the University, the diploma of the University, or the L.D.S. Diploma of the R.C.S. Eng. The composition-fee for the degree of B.D.S. is £97 13s., and that for the University diploma is £87 3s. The Dean of the Medical Faculty of the University answers inquiries concerning classes.

Dental Hospital of Manchester and Manchester Royal Infirmary.—Both these institutions are recognised by the University for the purposes of dental training. The total fees payable to the University, the Hospital, and the Infirmary for courses of study, chemicals, apparatus, examinations, and the conferment of the degree or diploma are approximately as follows: For the B.D.S. Manch., £311; for the L.D.S. Manch., £255; for the L.D.S., R.C.S. Eng., £264. The required outfit in each case costs about £40 in addition.

NEWCASTLE-ON-TYNE.—University of Durham College of Medicine (Dental Department).—Composition-fee (degree course), £68 5s.; (diploma course), £63. For particulars of the courses of instruction apply to Professor Howden.

Dental Hospital and School, Handyside's Buildings, Percy Street. Vice-Dean, Mr. J. Coltman.

ST. ANDREWS.—Composition-fees for courses for the L.D.S. diploma of the University are given in the University prospectus as amounting to £100 14s. Particulars may be obtained from the Secretary, University College, Dundee.

New Books

Coles, Alfred C., M.D., D.Sc.—*Critical Microscopy: How to get the best out of the Microscope.* 10 in. × 6 in. Pp. 100. 7s. 6d. J. & A. Churchill, 7 Great Marlborough Street, London, W. [This book is to be regarded as a supplement to general works on the microscope. Its purpose is to describe the methods and adjustments necessary in order to obtain the highest resolving power of the microscope. The method developed by the author of detecting *Spirochaeta pallida* and other spirochaetes with a low magnification lens is given. Photomicrography is dealt with in a short chapter.]

Hatschek, Emil.—*An Introduction to the Physics and Chemistry of Colloids.* Fourth edition. 7½ in. × 4½ in. Pp. 172. 7s. 6d. J. & A. Churchill, 7 Great Marlborough Street, London, W. [Mr. Hatschek, a recognised authority on colloids, originally based the work on a course of ten lectures delivered at the Sir John Cass Technical Institute, London, in which form the book achieved remarkable success as a text-book.]

Kay, S. A., D.Sc.—*A Text-book of Qualitative Analysis of Inorganic Substances.* 9 in. × 5½ in. Pp. 86. 7s. 6d. Gurney & Jackson, 33 Paternoster Row, London, E.C. [Analytical procedure is described somewhat minutely so that students can work without constant supervision. The student is taught to use only small quantities of material. The methods described are applicable to (1) mixtures of simple substances, mainly inorganic salts, oxides, acids, and bases, specially prepared for analytical practice; (2) metallurgical products, such as glasses and slags; (3) minerals; and (4) alloys. It is an excellent book for students of analytical chemistry.]

Knox, Joseph.—*Fixation of Atmospheric Nitrogen.* Second edition. 7½ in. × 4½ in. Pp. 124. 4s. Gurney & Jackson, 33 Paternoster Row, London, E.C. [One of the series of chemical monographs edited by Dr. A. C. Cumming. Gives an account of the more important processes for the fixation of atmospheric nitrogen and the theory on which they are based. In this, the second, edition, the chief progress reported is in the production of synthetic ammonia by the Haber and cyanide processes, and in the methods of oxidising ammonia.]

Science

In this section we give particulars of the methods of qualifying as a professional chemist, a term employed to designate persons who specialise in chemical analysis, research work, or technical supervision of chemical processes. There are, again, many chemists employed in teaching and in chemical engineering. There are also many "Works" chemists whose qualifications are mainly those of experience and long practice in the particular processes carried on in the factory. There are no legal requirements for any of these professions, but certain qualifications are necessary for the various positions. For example, before a chemist can be appointed a public analyst he must satisfy the controlling authority—the Ministry of Health—that he possesses certain qualifications that fit him for the post. In the same way research chemists need to hold science degrees, and to have specialised during their academic career in chemistry and physics. The university degree of B.Sc., with honours in chemistry, the Associateship of the Royal College of Science, the Manchester College of Technology, or similar institutions, are of the highest class, and holders can take the Fellowship of the Institute of chemistry in addition if they wish to specialise in the departments of chemical work covered by the last-named institution. There are many positions, such as the laboratories of wholesale drug-houses or public analysts, where a training in pharmacy gives the holder an advantage over academic chemists. It is on this account that many persons, having acquired the pharmaceutical qualifications, pass on to the professional side, and generally succeed in making a complete success of their career. The growing appreciation of chemistry in this country has had the effect of increasing the demand for well-qualified professional chemists, and it is hoped that recently established chemical industries will become permanent additions to the manufacturing resources of the country.

Preliminary Education

The standard of education which a student requires who desires to obtain a science degree is that of the Matriculation examinations of the universities, but for the diploma of the Institute of Chemistry the standard need not be so high. Those who are able to pass the Matriculation examination should do so, as it is an advantage to be able at any subsequent time to sit for a degree examination, the higher status conferred by a degree making this well worth while striving after.

The London University Matriculation examination is typical of the entrance standard of the Universities of Great Britain and Ireland. It is an examination for which boys are systematically trained at most of the public and secondary schools. For those who have left school the technical colleges and institutes provide the necessary facilities for study. The approved Preliminary examinations required by those who wish to become students of the Institute of Chemistry include the University Matriculation examinations and the Preliminary examinations of other educational bodies—e.g., the Senior Certificate or professional Preliminary of the College of Preceptors. The compulsory subjects must be passed at one examination, but in certain circumstances the Council of the Institute of Chemistry accepts evidence that the subjects have been passed in two examinations. For particulars of the London Matriculation apply to the Registrar, University of London, South Kensington, S.W.7, and for a list of Preliminary examinations approved by the Institute of Chemistry apply to the Registrar, 30 Russell Square, London, W.C.1.

Science Degrees

The London Science degrees are of world-wide repute, and they have the advantage that they are granted to both internal and external students. The examinations for the B.Sc. are (1) the Matriculation, (2) the Intermediate examination in science, and (3) the Final examination. The Intermediate examination takes place once a year, and commences on the first Monday in July. A candidate must have passed the Matriculation examination not later than the preceding January, or have fulfilled the

conditions of exemption, or otherwise. Candidates are required to pass in any four subjects selected by themselves out of the following: (1) Pure mathematics; (2) applied mathematics; (3) experimental physics; (4) chemistry; (5) botany; (6) zoology; (7) geology; and (8) military science. At least one of the four subjects selected must be taken from among the first three. The fee is £6 6s. Candidates enter either for a pass or for honours.

The Final examination for B.Sc. takes place once a year, commencing on the fourth Monday in October. Candidates must have passed the Intermediate at least a year previously, and the Matriculation at least three years previously. The fee is £6 6s. There are pass and honours sections. For the pass degree the candidate selects three out of thirteen prescribed subjects, while honours candidates take only one subject (of a much higher standard), along with an appropriate subsidiary subject. The degrees Master of Science (M.Sc.) and Doctor of Science (D.Sc.) are also granted.

The English provincial, Irish, Scottish and Welsh universities confer the B.Sc. degree (*cum curriculo*). As a rule the curriculum extends to three years after matriculation, with examinations at the end of each session. The degrees are granted in several branches—e.g., agriculture, biology, botany, chemistry, engineering, mathematics and physics. At Manchester and Glasgow the degree can be taken in pharmacy. In the earlier stages of the curriculum all students study together, the differentiation according to the special subjects taking place later.

Diplomas for Analytical Chemists

In professional chemistry the qualification of the Institute of Chemistry of Great Britain and Ireland (30, Russell Square, London, W.C. 1) is most sought after by pharmacists, for whom Branch E analysis of foods and drugs, water, etc.) has special attractions. The Institute was founded in 1877, and incorporated by Royal Charter in 1885, with the aims of elevating the profession of chemistry and maintaining the efficiency, integrity and usefulness of persons practising chemistry. Although a comparatively small body (there are about 4,000 Fellows and Associates), the steady growth of the Institute is likely to continue. Examinations are conducted periodically for the associateship of the Institute (A.I.C.). Associates who have been continuously engaged in applied chemistry for three years may obtain the Fellowship (F.I.C.), which is now practically essential for certain public appointments—e.g., public analysts. The conditions for registration and examination are as follows:—

STUDENTSHIP.—Candidates, who must be British subjects, must register at the Institute (30 Russell Square, London, W.C. 1) as students. They must be not less than sixteen years of age and have passed an approved Preliminary examination, and at the time of application be residing at a recognised institution or under a Fellow of the Institute, or, in exceptional cases, are being trained by a chemist in an approved laboratory or chemical works. In the last two cases annual reports of progress are required. Annual registration-fee, 10s.

ASSOCIATESHIP.—Admission to the examination for associateship is open to: (i.) Candidates who have been systematically trained in a recognised university or college; (ii.) candidates who have been trained partly in recognised universities or colleges and partly under Fellows of the Institute in laboratories or works; (iii.) candidates who have completed an approved evening course extending over two years and have been engaged during the day in

chemical work during that period; (iv.) candidates who have obtained a university degree, including chemistry in the subjects, and have taken a further year's training in chemistry at a university or college or have had two other years' approved experience under a Fellow of the Institute or in an approved laboratory or works. Applications from candidates who do not comply with the above requirements are also considered. Admission to the associateship without further examination may be granted to candidates who have obtained certain university degrees with 1st or 2nd class honours in chemistry, or other diplomas recognised by the Council, with certain limitations as to courses of instruction and training.

FELLOWSHIP.—Admission to the Fellowship is open by examination to associates of three years' standing, who are not less than twenty-four years of age, or may be granted without examination, or with a modified examination, at the discretion of the Council, to associates of three years' standing who (i.) have carried out original research; or (ii.) have devised processes or inventions of sufficient merit; or (iii.) have satisfied the Council that they are possessed of knowledge and ability equivalent to having fulfilled the conditions contained in (i.) and (ii.). In exceptional cases candidates who have been systematically trained, and who have had considerable experience, may be examined for the Fellowship without passing through the grade of Associateship.

THE EXAMINATIONS.

The subjects of examination (fee, five guineas) for the associateship are as follows:—

(a) *General Theoretical Chemistry.*—Candidates are required to show a thorough acquaintance with the fundamental laws and the current theories of chemistry, together with the properties and the methods of preparation of the more important elements and of their compounds, both inorganic and organic; their application in the arts and industries. At least two papers, including questions in inorganic, organic, and physical chemistry, will be set.

(b) *Practical Chemistry.*—Exercises in qualitative analysis and quantitative analysis (both gravimetric and volumetric), including the analysis of alloys, ores, and minerals, and the determination of substances present in minute quantities, as impurities or otherwise, in commercial products. Preparation and purification of well-defined chemical substances. Organic analysis, including the recognition and determination of the elements and of typical groups and radicals, the identification of organic compounds. Gas analysis. The determination of physical constants and the use of physical instruments employed by chemists.

The examination in quantitative analysis may include the performance of some operation selected from the candidate's own record.

Candidates are required to satisfy the examiners as to their ability to translate technical literature from French and German into English with the aid of dictionaries.

The Fellowship examination is more specialised, there being various branches for which the candidates may enter. These include (E) the chemistry of foods and drugs and water, (F) bio-chemistry, and (G) chemical engineering.

The Regulations for the admission of students, associates and Fellows are obtainable from the Registrar, 30, Russell Square, London, W.C. 1.

Science Schools

The following are the principal institutions at which science instruction for London science degrees can be obtained, also courses for the National Certificates in Chemistry awarded by the Board of Education, and for

SCIENCE QUALIFICATIONS

(IN BRIEF)

B.Sc. LONDON DEGREE

1. Pass Matriculation.
2. Intermediate Examination in Four Science Subjects selected out of Eight. Fee £6 6s.
3. Final Examination taken at least one year afterwards. Fee £6 6s.

F.I.C. DIPLOMA

1. Pass approved Preliminary Examination and Register as Student while training with recognised instructor. Annual Fee 10s.
2. After 4 years' day training, Examination for Associateship. Fee £5 5s.
3. Three years after may be admitted a Fellow. Entrance Fee £5 5s.

the Institute of Chemistry Examinations. For further particulars students should apply to the Secretary of the institution they propose to enter:—

ABERDEEN.—*University.*—Degree courses in science. *Robert Gordon's Technical College* includes a well-equipped chemical department (as well as pharmaceutical) and other classes in allied applied science.

ABERYSTWYTH.—*University College of Wales.*—Science course, £16 per session (with practical work). Registration-fee, £1.

BANGOR.—*University College of North Wales.*—Composition fees as at Aberystwyth.

BARROW-IN-FURNESS.—*Technical Schools, Abbey Road.*—Evening classes in chemistry are available.

BELFAST.—*Queen's University.*—Class fees in the Faculty of Science, from £1 1s. to £3 3s. each subject. *Municipal Technical Institute.*—For particulars of the science courses apply to the Principal.

BIRMINGHAM.—*University.*—B.Sc. curriculum (pure science). *Municipal Technical School, Suffolk Street.*—Evening classes in chemistry, botany, and physics.

BLACKBURN.—*Municipal Technical School.*—Day and evening classes are available in chemistry, physics, and botany.

BRADFORD.—*Technical College.*—Day and evening courses for University of London degree examinations and Public Health Diploma.

BRIGHTON.—*Municipal Technical College.*—Day courses for University of London examinations.

BRISTOL.—*University.*—Degree courses for B.Sc., M.Sc., Ph.D., and D.Sc. *Merchant Venturers' Technical College.*—Courses in chemistry, physics, and nature-study.

BURNLEY.—Classes are held at the *Municipal Technical Institute* in chemistry and physics.

CAMBRIDGE.—*University.*—For particulars apply to registry.

CARDIFF.—*University College of South Wales and Monmouth and Technical College.*

CORK.—*University College.*—A constituent College of the National University of Ireland.

DARLINGTON.—*Technical College.*—Courses in chemistry, metallurgy, and medical and dental science.

DERBY.—*Technical College.*—Classes in chemistry, botany, and physics.

DUBLIN.—*Royal College of Science.*—Similar to the Imperial College in South Kensington. Three years' course for A.R.C.Sc.I. in chemistry (pure and applied) and other branches. *Trinity College.*—Apply to the Registrar. *University College* (National University of Ireland).

DUNDEE.—*University College.*—Day classes in botany, chemistry and physics. *Technical College.*—Central institution for eastern counties of Scotland for technical and art instruction.

EDINBURGH.—*Heriot-Watt College, Chambers Street.*—The day chemistry course is recognised by the University of Edinburgh and the Institute of Chemistry.

EXETER.—*University College.*—Degree course in science. Fees, £25 per annum.

GALWAY.—*University College.*—A constituent college of the National University of Ireland.

GLASGOW.—*University.*—Degree courses in science. *The Royal Technical College.*—The day and evening classes include chemistry, technical chemistry (oils and fat, fuel, gas-manufacture, sugar-manufacture, dyeing), physics, botany, and bacteriology.

HALIFAX.—*Municipal Technical College.*—Day and evening classes in chemistry.

HUDDERSFIELD.—*Technical College.*—Full-day and evening courses in chemistry, physics, botany, and other science and technological subjects, such as the chemistry and manufacture of dyes.

HULL.—*Municipal Technical College, Park Street.*—Evening classes for Matriculation, Inter. and Final B.Sc. (pass and honours).

LANCASTER.—*The Storey Institute.*—Evening classes in chemistry, physics, and botany.

LEEDS.—*University.*—Degree courses in science. *Central Technical School, Cookridge Street.*—Evening classes in chemistry.

LIVERPOOL.—*University.*—Composition-fees for degree courses at £40 a session.

LONDON

IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY, South Kensington, S.W.7.—This is a national institution, and comprises the Royal College of Science, the Royal School of Mines, and the City and Guilds (Engineering) College. Year by year the College gathers students who have gained science scholarships in the examinations conducted under the Board of Education, including the Royal Exhibitions and National and Whitworth Scholarships. Government chemists are also trained at the Royal College, and private

students are received for systematic training to qualify them for various pursuits in applied science. Entrants should have passed the Matriculation examination of the London University or its equivalent or the Entrance examination of the College. The courses of instruction extend to three years at least. The fees have recently been increased to £62 10s. per session. The diploma of A.R.C.S. (Associate of the Royal College of Science) is granted in mathematics, mechanics, physics, chemistry, botany, zoology, and geology after three years' study; of A.R.S.M. after four years' training in mining, metallurgy, and the technology of oils etc.; and of A.C.G.I. after three years' study in engineering. In all cases examinations are held in each academic year on the work of the year. The diploma of the Imperial College of Science and Technology (D.I.C.) is also awarded on similar conditions.

BATTERSEA POLYTECHNIC, Battersea Park Road, S.W.11.—Complete day and evening courses in chemistry, botany, physics, and engineering. Fees, £18 per session for day students. There are also special evening classes in bacteriology; food and drug analysis; oils, fats, and soaps; and "recognised" London B.Sc. courses.

BIRKBECK COLLEGE, Breams Buildings, Chancery Lane, E.C.4.—Complete courses (day and evening) for University of London science degrees and other examinations in science. Composition-fees for Intermediate or Final science examination (day courses), £7 a term, £18 5s. a session; (evening courses), £2 5s. a term, £6 a session.

BOROUGH POLYTECHNIC INSTITUTE, Borough Road, S.E.1.—A series of technical lectures on essential oils, by Mr. C. T. Bennett, B.Sc., Ph.C., commences in September. Fee, 5s., or 10s., including practical work. Food-stuffs, electro-chemistry, and laundry materials are the subjects of other courses. Chemistry classes are also held, beginning in September; fees, 5s. to 10s. per session.

CITY OF LONDON COLLEGE, White Street, Moorfields, E.C.2.—Evening classes in chemistry (pure and commercial) cost 15s. per session for non-members.

EAST HAM TECHNICAL COLLEGE.

EAST LONDON COLLEGE, Mile End Road, E.1.—Classes in chemistry, mathematics, physics; and botany. Intermediate, Final, and Honours B.Sc. courses, and courses for the diplomas of the Institute of Chemistry. Fee, £21 per annum.

KING'S COLLEGE, STRAND, W.C.2.—The composition-fee in the Faculty of Science is £31 10s. per annum; entrance-fee, £6.

NORTHERN POLYTECHNIC INSTITUTE, Holloway, N.7.—The composite fees for the Intermediate and Final B.Sc. courses are: Day, £15 per annum; evening, £2 10s. to £5 15s. per session. Evening classes in chemistry, botany, physics, and photography cost from 5s. to 50s. each subject.

ROYAL HOLLOWAY COLLEGE, Englefield Green, Surrey.—For women students only, mainly residential. There are degree courses in science. Fees: Residential students, £135 per annum; non-residential, £45 per annum.

SIR JOHN CASS TECHNICAL INSTITUTE, Jewry Street, Aldgate, E.C.3.—Evening courses in chemistry, physics, also on fermentation industries, fuel, metallurgy, and mining at moderate fees.

SOUTH-WESTERN POLYTECHNIC, Manresa Road, Chelsea, S.W.3.—Day and evening courses in chemistry and botany. Fees for the B.Sc. course: Day, £15; evening, £3 per session. Classes are also held on food and drugs analysis.

UNIVERSITY COLLEGE, LONDON, Gower Street, W.C.1.—Fees for three years B.Sc. course, including chemistry, £111 1s.

WANDSWORTH TECHNICAL INSTITUTE, High Street, Wandsworth, S.W.18.—Evening classes in science; fee for a recognised course, 15s. a session.

WEST HAM TECHNICAL INSTITUTE, Romford Road, E. 15.—Evening and day classes in chemistry and physics.

WOOLWICH POLYTECHNIC, Lower Market Street, Woolwich.—Classes in chemistry and botany; fee, 7s. 6d. to 12s. 6d.

MANCHESTER.—*Victoria University.*—Fees for degree courses in science are £33 11s. to £37 16s. per session. The *College of Technology* also provides specialised instruction in applied chemistry. A degree of Bachelor of Technical Science (B.Sc. Tech.) is now obtainable.

NEWCASTLE-UPON-TYNE.—*Armstrong College.*—Tuition fees for degree course in pure science, £35 per annum.

NORWICH.—*Technical Institute.*—Evening classes in chemistry and physics. Classes in practical chemistry and practical physics are held on two mornings a week.

NOTTINGHAM.—*University College.*—London University B.Sc. day course in chemistry; composition-fee, £10 10s. per term. Evening classes in chemistry, physics, botany.

OXFORD.—*University.*—For particulars apply to Registrar.

PAISLEY.—*Technical College.*

PLYMOUTH.—*Municipal Science, Art, and Technical Schools*.—Day and evening courses in science subjects.

PORTSMOUTH.—*Municipal College*.—Instruction in science subjects (including chemistry, physics, and botany) at day and evening classes.

READING.—*University College*.—B.Sc. course for London University examination, £30 per session. Evening classes in chemistry and botany.

ROCHDALE.—*Municipal Technical School*.—Evening classes in chemistry and botany (practical work included).

ST. ANDREWS.—*University College*.—Class-fees in University degree course are from £1 11s. 6d. to £4 4s. per subject during the summer session, and £3 3s. to £4 4s. in the winter session. All graduating students pay an inclusive fee, which covers a stated number of courses.

SALFORD.—*Royal Technical Institute*.—Two years' day course, for which a diploma, endorsed by the Board of Education, is awarded. Evening courses in chemistry and physics, qualifying for "course" certificate.

SHEFFIELD.—*University*.—Degree courses in science. The composition-fee for B.Sc. course is £90, payable in three annual instalments. *Central Secondary Evening School*.—Classes in chemistry and botany.

SOUTHAMPTON.—*Hartley University College*.—B.Sc. course; composition-fee, £30 per session.

SWANSEA.—*University College and Technical College*.—Evening classes in chemistry, physics, and botany. Day courses are held for degrees in science.

Optical Diplomas

One of the most appropriate and popular subjects for a chemist and druggist to take up is the study of ophthalmic optics, the supplying of spectacles and sale of optical instruments often becoming as important a part of his business as pharmacy. Though no qualification is required by law to practise as an optician in this country, it is preferable to be in possession of a diploma granted by one of the recognised examining bodies. These examinations should, after a course of study, present no difficulties to chemists who, when unable to leave business and attend lectures, usually learn the theory by postal instruction and go to a school for a short time before the examination to acquire the practical knowledge. It is a further advantage to have some experience of lens-grinding, particularly for those contemplating emigration. When starting an optical branch the initial outlay, some idea of which may be gained from the *C. & D.*, II., 1920, p. 1441, is not a serious matter, as a large stock need not be carried. We also direct attention to the advantages to chemists who are interested in optics of becoming connected with the Society of Chemist-Opticians, which was founded in the interests of chemists carrying on an optical business. Membership carries with it a weekly journal ("The Optician"). The honorary secretary is Mr. J. Harcombe Cuff, 453 Caledonian Road, London, N. 7.

The Diploma Schemes

THE SPECTACLE MAKERS' COMPANY, 14 Temple House, Temple Avenue, London, E.C., whose Royal Charter was granted in 1629, and whose diploma scheme, founded in 1893, has been revised at intervals on progressive lines, holds examinations in London in May and November of each year. There are two divisions of the examinations for the diploma in visual optics and sight-testing:—

(1) The Preliminary division, consisting of (a) optical bench work, (b) *viva-voce* examinations in general and practical optics, (c) a written examination in optical calculations and practical optics, and (d) a practical examination in the neutralisation of lenses and lens-setting.

(2) The Final, consisting of (e) practical examination in frame adjustments and measurements, and optical prescriptions (f) *viva-voce* examinations in visual optics (g) written examination in visual optics, and (h) practical examination in sight-testing.

Candidates over eighteen years of age are admitted to the Preliminary division, but not to the Final until twenty-one years of age. Candidates over forty years of age, who have spent ten years in the optical industry, are exempted from section (c) of the Preliminary. Entries, together with the fees, £3 3s. for each division, are payable one calendar month prior to the examination, and in addition there is a registration-fee of £4 4s. (including £3 Government duty),

payable when the diploma is issued, and an annual payment of 4s. to the Company for "quarterage." Candidates who pass in some sections and fail in others are not required to sit for the sections in which they were successful. A diplomate is entitled to use the initials F.S.M.C. and the arms of the Company for business purposes, and to claim the freedom of the City of London at a cost of £1 1s. The examination is accepted as a qualification for the Fellowship of the Institute of Ophthalmic Opticians.

The full prospectus, with application form, can be obtained from the Clerk of the Company.

THE BRITISH OPTICAL ASSOCIATION (incorporated 1895), 10 Clifford's Inn, London, E.C. 3, whose scheme has also undergone considerable modification in recent years, holds two examinations, the Associate (Dioptric) and Final (Fellowship). The examinations are held in London in May and November of each year, and occasionally at provincial centres. Candidates are expected to bring their own test cases, etc., but by previous arrangement the required apparatus will be provided on the payment of a fee of 10s. The Dioptric examination is open to both sexes over eighteen years of age. Every candidate must have attained the age of twenty-one before either membership or a certificate is granted, and is also obliged to furnish the name of some person residing in the United Kingdom who will become bond to the extent of £10 for the safe return (in event of death, bankruptcy, or misconduct of the member) of the certificate. Those who pass in one section and not in others are not required to sit for the sections in which they were successful. The annual subscription of certificated members or fellows is £3 3s. The examination is divided into three sections as follows:—

(1) Optical bench work; neutralising; straightening twisted frames; face measurement; frame repairs. (2) Subjective sight-testing. (3) Written questions in mechanical optics; physiologic optics; anatomy and physiology; and an oral examination in "resource."

For the Fellowship examination, candidates, who must hold the dioptric certificate, or have passed the examination of the Spectacle Makers' Company prior to December 31, 1919, are examined in similar subjects as before, but a deeper knowledge is required, and prismetry, ophthalmoscopy, embryology, and microscopical demonstrations are included.

The fees for the Dioptric examination are £10 10s., and for Fellowship £5 5s. The Dioptric certificate entitles the holder to the use of the initials D.B.O.A., and the Fellowship certificate to F.B.O.A. The full prospectus and application forms may be obtained from the secretary, Mr. J. H. Sutcliffe, F.B.O.A., O.B.E., Clifford's Inn Hall, London, E.C. 4.

THE NATIONAL ASSOCIATION OF OPTICIANS has recently instituted a diploma scheme, under which examinations are held twice yearly at such times and places as the Council of the Association determine. On passing the examination the candidate is granted the Fellowship diploma. There is also a modified examination for those who were members of the Association on July 1, 1922. The Fellowship examination is divided into two parts, as follows, the fee for each being £3 3s.:—

(1) A written examination in general and practical optics, and optical calculations; a practical examination in neutralisation of lenses, frame adjustments and measurements, and optical prescriptions; (2) a written examination in visual optics, and diseases of the eye; a *viva-voce* examination in visual objects, and diseases of the eye; practical sight-testing.

In the event of failing in a subject or section the candidate may be re-examined, the re-examination-fee being £2 2s. The prospectus may be obtained from the secretary, 163 Oakfield Road, Liverpool.

Optical Instruction

The following are among the principal schools where the necessary instruction in preparation for the examinations of the bodies named may be obtained:

NORTHAMPTON POLYTECHNIC INSTITUTE, Clerkenwell, London, E.C. 1.—The full course of technical optics extends over two years, but is so arranged that the knowledge required for the examinations of the Spectacle Makers' Company and the British Optical Association will be covered in the first year of the whole-time day

course. Modifications have been made in the evening courses to enable students to take the preliminary portions of the above-named examinations at the end of the first or of the second year's work and the complete examination in three years. The "Aitchison Memorial Scholarship" is tenable at the Institute. The examination for the scholarship is held biennially, the next being in September 1923. Full particulars may be obtained from the secretary and treasurer, Mr. H. F. Purser, 35 Charles Street, Hatton Garden, E.C.1. The prospectus of the Institute can be had by applying to Dr. R. Mullineux Walmsley, the Principal.

THE SCHOOL OF OPTICS, LTD., 2 Guildford Place, London, W.C.1, where Mr. Lionel Laurance, who is official instructor to the Spectacle Makers' Company, and Mr. H. Oscar Wood prepare students for the Company's examinations, is well fitted up and thorough training is given. There are two courses. The complete full-time course (fee £31 10s.), which commences in May and November of each year, terminates with the next succeeding examination, and covers both the Preliminary and Final divisions. The part-time combined course (fee £14 14s.), which can be commenced at any time, consists of home-work by correspondence, supplemented by classes, which are held each day for four weeks immediately preceding the examination. The text-books, "General and Practical Optics" and "Visual Optics and Sight-Testing," written by Mr. Laurance, are best suited for the Company's examination.

THE BRITISH OPTICAL INSTITUTE, LTD., Fern Lodge, 20A Grove Road, Brixton, London, S.W.9, offers every facility for the instruction of those wishing to prepare for either of the examinations. The necessary tuition is obtainable at day and evening classes or by a system of postal correspondence. Vacation classes, with individual attention, not necessarily for examination purposes, are held during the months of July, August, and September. The Principal is Dr. Max Coque, B.Sc.

MR. C. A. SCURR, F.S.M.C., chemist and druggist, 64 High Street, Barnet, prepares candidates for the foregoing examinations. The courses, being mainly correspondence, are particularly suitable for those desiring an optical qualification by spare-time study. The practical work is arranged to suit the students' convenience, but is usually acquired during a visit to London just prior to the examination. This also gives an opportunity for revision or additional personal coaching. The tuition-fee for either the S.M.C. or B.O.A. examination is £8 8s., and £6 6s. for the F.N.A.O. examination.

THE COLLEGE OF OPTICS, Glasgow and Edinburgh, forms a centre for optical instruction in Scotland, and complete training may be obtained for either examination. There are "all day" and correspondence courses, which can be arranged to suit each individual student. Full particulars may be obtained from the Principal, Mr. T. S. Baird, F.R.M.S., F.S.M.C., 395 Argyle Street, Glasgow.

MUNICIPAL COLLEGE OF TECHNOLOGY, Manchester, conducts evening classes in applied optics which cover the syllabus of the British Optical Association's examinations. Full particulars may be obtained from the secretary.

THE TECHNICAL COLLEGE, BRADFORD, conducts evening classes to meet the requirements of the Spectacle Makers' and the British Optical Association's examinations. The fees vary from 10s. to 15s. per session, according to the course.

Veterinary Surgery

To practise veterinary surgery in Great Britain and the British Dominions it is necessary to obtain the diploma of the Royal College of Veterinary Surgeons, which body alone is empowered to grant such licences. Before entering upon the professional studies the candidate must pass a Preliminary examination in general education, the subjects being English, mathematics, and two foreign languages. The standard hitherto accepted has been similar to that of the Pharmaceutical Preliminary, but after March 1923 the standard will be raised to that required for medical qualifications. On commencing the professional studies

the student has to attend the prescribed courses, extending over four sessions of about thirty weeks each, at recognised (affiliated) veterinary college, and pass four examinations, one at the end of each academic year. These are held simultaneously in London, Liverpool, Edinburgh, Glasgow, and Dublin in July and December.

First Professional Examination.—Anatomy of the domesticated animals; chemistry and physics; biology.

Second Professional Examination.—Anatomy of the domesticated animals; histology and physiology; animal management, and the principles of shoeing.

Third Professional Examination.—Pathology, bacteriology, and protozoology; materia medica and toxicology; veterinary hygiene and dietetics.

Fourth Professional Examination.—Principles and practice of veterinary medicine; meat inspection; principles and practice of veterinary surgery and obstetrics.

The examination-fee for each year is £5, and a registration-fee of £1 on passing the fourth examination.

The Fellowship examination of the Royal College in one of the following subjects—Anatomy, physiology, pathology, helminthology and entomology, pharmacology and toxicology, medicine, tropical medicine, surgery, or sanitary science, is open to members of two years' standing.

Particulars of the examinations may be obtained from Mr. Fred Bullock, secretary, Royal College of Veterinary Surgeons, 10 Red Lion Square, London, W.C.1. Two research scholarships, offered by the Ministry of Agriculture and Fisheries, of the value of £200 each per annum, and tenable for three years, are open to members or others who have shown proficiency in medicine or a relevant branch of science. Application forms, which should be returned by August 15, are obtainable from the Ministry, Whitehall, London, S.W. The Clement Stephenson entrance scholarship of the value of £80 per annum for four years is tenable at the Royal Veterinary College. The examination is held in September, the subjects being biology, chemistry, and physics. Candidates must not be over eighteen years of age on October 1 of the year of the examination.

Veterinary Degrees

Veterinary-science degrees are granted by the Universities of Bristol, Edinburgh, Glasgow, Liverpool, London, and Manchester to candidates who matriculate and take the prescribed course of study. These degrees, however, do not in themselves enable the graduate to practise as a veterinary surgeon. An extra year is required to cover the curriculum for a degree.

Veterinary Colleges

(Affiliated to the R.C.V.S.)

LONDON.—*Royal Veterinary College* (founded 1791; incorporated 1875), Great College Street, Camden Town, N.W.—Educational fee for four years' course of instruction, £105, may be paid in four instalments. There are also library and other fees amounting to £3 16s. 6d. Fees for occasional students are from £3 3s. to £8 8s. per subject, and for those taking the B.Sc. degree in veterinary science of the University of London additional fees totalling £15 15s. Principal and Dean, Professor Sir John McFadyen, M.B., B.Sc., LL.D., M.R.C.V.S. Secretary, Mr. T. C. Wright.

EDINBURGH.—*Royal (Dick) Veterinary College*, Summerhall (founded 1825).—Entrance- and class-fees for the complete curriculum amount to £85, with an extra fee of £6 6s. for each subsequent period of ten weeks. Principal, O. Charnock Bradley, M.D., D.Sc., M.R.C.V.S.

DUBLIN.—*Royal Veterinary College of Ireland*, Shelbourne Road, Ballsbridge.—The college is conducted by the Department of Agriculture and Technical Instruction for Ireland. Fees, £21 per session, with £1 1s. entrance fee. Principal, Professor J. F. Craig, M.A., M.R.C.V.S., M.R.I.A., Professor of Medicine and Meat Inspection. Registrar, Mr. G. E. Haines.

GLASGOW.—*Glasgow Veterinary College* (established 1862; incorporated 1909), Buccleuch Street, Garnethill.—Fee for the complete course, £85. Principal, Mr. S. H. Gaiger, F.R.C.V.S.

LIVERPOOL.—*The University Veterinary School* gives a university training for the M.R.C.V.S., and also for a veterinary degree. For the fees and complete curriculum application should be made to the Director.

Trade Report

prices given in this section are those obtained by importers or manufacturers for bulk quantities or original packages. To these prices various charges have to be added, whereby values are in many instances greatly augmented before wholesale dealers receive the goods into stock, after which much expense may be incurred in garbling and the like. Qualities of chemicals, drugs, oils, and many other commodities vary greatly, and higher prices than those here quoted are charged for selected qualities of natural products even in bulk quantities.

42 Cannon Street, E.C.4, August 10

The combined efforts of the Exchanges, the weather and tidays, keep business in small compass, and the markets, generally, are more or less inactive. The position in regard to new crop chamomiles is uncertain, and buyers still, no doubt, exercise caution in making purchases. Higher prices for Spanish ergot c.i.f. are already coming forward. Hydrastis is expected to advance; spot supplies are in few hands. Gentian is lower. Turkey opium is improved on the spot. The other articles will be under their respective headings.

Higher	Firmer	Easier	Lower
Ascorbic acid Cayenne oil Essia oil Veal oil Scent oil (Jp.) Scent oil (U.S.) Peppermint oil (U.S.)	Arrowroot Benzoic acid Cloves Glucose Lemongrass oil (c.i.f.) Opium Palmarosa oil Phenacetin Potas. prussiate Zinc products	Agar-agar Ammon. chloride Benzonaphthol Betanaphthol Camphor oil Coconut (desic.) Cottonseed oil Farina (Jp.) Linseed oil Palm oil Peppers Potass. sulpho- guaiacolate Sandalwood oil (W.I.) Sodium diethyl- barbiturate Sodium prussiate Tartaric acid	Alain Bois de rose (temelle) oil Canada balsam Gentian root Sheila Sodium bicarbonate Soda crystals Turpentine

Crude Drugs, etc.

AGAR-AGAR.—No. 1 Japanese is unchanged at 4s. 6d. per lb. spot, and 4s. 3d. c.i.f. No. 2 is cheaper at 11d. to 4s. Shipment price is 3s. 10d. c.i.f.

The exports from Japan during May amounted to 136,461 lb., valued at 218,423 yen. During the five months ended May 31 they were as follows:—

	1920	1921	1922
Kin	588,311	771,474	821,895
Yen	951,040	839,244	1,245,626

ALOE.—The exports from the Union of South Africa during April amounted to 435 lb. (value £4), compared with 13,516 lb. (£150) in April, 1921. For the four months ended April 30, 1922, the total was 60,696 lb. (£421), compared with 29,494 lb. (£350) for the corresponding period last year.

ALOIN.—Makers have reduced their price by 3d. to 9d. per lb.

AMMONIACUM is steady at 2s. 9d. per lb., for fine pale top.

ANTIMONY.—Foreign refined is offering down to about 23 c.i.f., and spot lots are held for £24 to £24 10s. English regulus ordinary is now rather nominal, the supply being restricted on terms ranging from £27 to 29 10s. Crude is irregular at between £14 10s. and £16.

BENZON.—The increased demand continued during July, 149 packages having been delivered from the drug arehouse; there were no imports. The stock at the end of July was 813 packages, against 2,121 at the corresponding period last year.

BUCHU is unchanged at 3s. 9d. to 3s. 10d. per lb. for good round green. The exports from the Union of South Africa during April, 1922, amounted to 10,664 lb. (£1,278), against 14,629 lb. (value £2,379) in April, 1921. For the four months ended April 30, 1922, the exports were 41,102 lb. (£5,279), compared with 37,391 lb. (£6,486).

CALUMBA.—The deliveries from the London drug warehouse during July amounted to 197 packages; there were

no imports. The stock on July 31 was 16,419, against 20,163 on July 31, 1921.

CAMPHOR.—Japanese 2½ lb. slabs are steady on the spot at 3s. 6d. per lb.; ¼ oz. tablets 4s. 6d. No c.i.f. offers are mentioned.

CANADA BALSAM has been in fairly good demand at 5s. 3d. to 5s. 6d. per lb., which is easier.

CARDAMOM SEEDS are very scarce. We understand that no fresh offers from the other side have come in for some time. Good seeds command 2s. 6d. to 2s. 7½d. per lb.; a few cases of grey are offered at 2s. 5d.

CASCARA SAGRADA.—One year old bark is 62s. 6d. per cwt., 3 year old at 70s., 4 to 5 year old 72s. 6d. to 75s. The London stock at the end of July stood at 68 tons against 52 tons in 1921. The landings amounted to 2 tons and the deliveries to 3 tons.

CHAMOMILES.—The first pickings of the new Belgian crop are expected to be ready in about two weeks' time; of the exact position much reticence is shown. Various prices are hinted at between 175 francs and 200 francs.

COD-LIVER OIL.—Our Bergen correspondent writes: "Confirming my last report of July 31, the market for cod-liver oil continues firm at 105s. to 110s. per barrel c.i.f. London for finest manufacturers' quality."

ERGOT is unchanged at 3s. 6d. to 3s. 9d. per lb., spot for prime sound Spanish. For shipment 3s. 4d. to 3s. 6d. c.i.f. is now asked.

GENTIAN.—Whole root is cheaper; small lots are quoted at 40s. per cwt., and for ton lots 38s. 6d. would probably be accepted. Cut remains at 60s.

GLUCOSE.—For August-September delivery, American guaranteed water white is firmer at 28s. per cwt. duty paid landed terms.

HEN VOLK is unchanged on the spot at 110s. per cwt. for prime Chinese (1½ per cent. boric acid). For shipment July-August is 95s.; August-October 91s. c.i.f.

HENNA.—The Egyptian variety is scarce on the spot, and business has been done at 90s. per cwt. The Indian is quoted at 80s. per cwt.

HYDRASTIS.—According to reports from the States, the supplies that are coming along are barely sufficient to fill the orders. Higher prices are expected. Spot is unchanged at 17s. 9d. per lb.

IPECACUANHA.—During July the landings were: Matto-grosso, 20 packages; Carthagena, 12. The deliveries were: Matto-grosso, 32; Minas, 2; East Indian, 9. The small stock is thus further reduced, the total at the end of July being 277 packages (Matto-grosso 194, Minas 46, Carthagena 17, East Indian 76), against 674 on July 31 last year.

MENTHOL.—Japanese Kobayashi-Suzuki is steady at 24s. per lb. in single cases. The price to come forward is 22s. 6d. c.i.f.

The exports from Japan during May amounted to 53 piculs, valued at 72,751 yen. During the five months ended May 31 they were as follows:—

	1920	1921	1922
Piculs	1,485	934	648
Yen	3,258,334	868,318	692,314

MERCURY.—The market is sound and probably not too much attention should be given to the comparatively low rates occasionally quoted in certain quarters, which may possibly relate to parcels to come forward. The offers made of actual spot metal are limited, and the prices ruling range from about £11 10s. to £11 15s. per bottle. There seems to have been a good deal of business put through lately chiefly for the Far Eastern markets, and quite a fair inquiry is reported from India and South America. The tone in the United States is reported steady to firm, and it is stated that good sales were recently made by Spanish and also Italian mines to that country as well as to the United Kingdom. The outlook for the product appears to be satisfactory, due to the falling stocks.

OPIMUM.—Turkey, druggists', is firmer at 1s. 2d. per unit.

RHUBARB.—During July, the deliveries from the drug warehouse amounted to 45 chests, the landings to 47. The stock at the end of July was 694 chests, against 1,080 on July 31, 1921.

SENEGA continues very firm at from 4s. 3d. to 4s. 6d. per lb., sales being reported at the higher figure. For August-September shipment 3s. 6d. c.i.f. is quoted.

SHELLAC is dull and lower at 330s. to 335s. per cwt. on the spot for T.N. AC cakey Garnet is 330s.; GAL, 305s.; fine seconds, 380s. to 390s.; superfine, 420s. to 440s.; RL 1, 425s. For August delivery TN is lower at 300s.; October, 295s. For August-October shipment, TN is 300s. c.i.f., being also lower.

STARCHES.—Japanese is slightly easier at 25s. per cwt., afloat. Dutch is unchanged at 29s. spot. English rice starch, crystals, is steady at £44 per ton, and Continental at £33 10s. American maize at 15s. per cwt.

TURMERIC.—During July the deliveries from the drug warehouse amounted to 67 tons and the landings to 46 tons. The stock on July 31 was 348 tons, compared with 906 tons at the corresponding date last year.

WAX (VEGETABLE).—Japanese is unchanged at 85s. per cwt., and 76s. c.i.f. Carnauba is steady at 92s. 6d. per cwt. for fatty grey, and 85s. for chalky.

The exports from Japan during May amounted to 6,549 piculs, valued at 259,977 yen. During the five months ended May 31 they were as follows:—

	1920	1921	1922
Piculs	3,586	6,356	24,110
Yen	194,627	225,236	951,216

Seeds, Spices, etc.

ARROWROOT (ST. VINCENT).—All cheap parcels have been gradually cleared, and nothing is now offering below 4½d. per lb.: better qualities at 5d. and 5½d.

CASSIA LIGNEA is unchanged at 46s. per cwt. for whole selected, and broken at 34s. on the spot.

CINNAMON is unchanged with spot sellers of Ceylon firsts at 11d. per lb., seconds at 10d., thirds at 9d., and fourths at 7½d.

CLOVES are firmer at 1s. 2½d. per lb. on the spot for fair Zanzibar. For shipment, October-December, 7½d. c.i.f. has been paid.

COCONUT (DESICCATED) is quiet and easier at 35s. 6d. per cwt. for fine or medium on the spot. For shipment afloat 33s. has been paid. August-September shipment is 34s. c.i.f.

GINGER.—All varieties remain steady at about previous rates; African, 44s. per cwt.; Calicut (sound), 57s. 6d. and 62s. 6d.; Cochín (sound), 57s. 6d.; Japanese, 45s.; Jamaica, 175s. to 225s.

PEPPER.—The market remains dull and with an easier tendency. Fair black Singapore is unchanged on spot at 4d. per lb. August-October and September-November shipments have sellers at 3½d. c.i.f., which is easier. Fair Tellicherry is 4½d. on the spot; Aleppy 4½d. Lampong is easier at 4½d. on the spot. White Muntok is easier at 7½d. August-October or September-November is easier at 6½d. c.i.f., d.w. White Singapore is cheaper at 6½d. on the spot and 6½d. c.i.f., d.w., for shipment.

PIMENTO is dull and unchanged at 2d. to 2½d. per lb. on the spot.

SEEDS.—Prices are as given in our last week's issue.

Essential Oils

THIS section continues to receive a fair amount of attention, which quickly reacts on the prices. Caraway is again dearer. Cassia oil has advanced. After a long period of dullness Japanese mint is active and may advance; American peppermint is dearer. Lemongrass (c.i.f.) is firmer and palmarosa is hardening. Camphor oil is easier in some directions. Lemon is steadier, and bois de rose is offered at cheaper rates.

ANISE (STAR).—"Red Ship" is steady at from 2s. 3d. to 2s. 4d. per lb. on the spot. For shipment 2s. 4½d. c.i.f. is still about the figure.

BERGAMOT on the spot is steady at from 14s. 3d. to 14s. 9d. per lb. for 37 to 39 l.a. and 14s. c.i.f.

BOIS DE ROSE (FEMELLE) is obtainable at 10s. 6d. per lb. on the spot, which is cheaper.

CARAWAY continues to advance on the spot, and some holders have entirely withdrawn. Up to 16s. per lb. for rectified is quoted.

CASSIA.—The demand from America for 80 to 85 c.a. last week absorbed about 200 cases and the market is

now firm, with one seller at 4s. 7½d. per lb., but 4s. 9c. is generally asked. For shipment 4s. 3d. c.i.f. is quoted.

CITRONELLA.—Ceylon on the spot is firm at 2s. 6d. per lb., spot in drums. For shipment afloat 2s. 3½d. has been paid. Distant shipment does not appear to attract much interest at present, but July-August would probably be done at 2s. 2d. to 2s. 3d. c.i.f. Java or Burmese is quiet at prices ranging from 2s. 10½d. to 2s. 11d. spot.

CLOVE.—The advance in the spot price of the spice has resulted in higher prices for the oil, 8s. 6d. being now the current quotation for English. Second-hands may shade this. Mysore oil is 7s. 9d. and still advancing. The prospect of cheaper material within the next few months may induce buyers to curtail further purchase except for immediate requirements. Large sales have been made recently up to 7s. 3d.

CINNAMON.—Ceylon leaf is unchanged at 4½d. per oz. spot and 3½d. c.i.f.

CAMPOR.—White essential in large (7 cwt.) drums is quoted at 77s. 6d. to 80s. per cwt. Cases may also be obtained at the higher figure. The c.i.f. price is about 70s.

The exports from Japan during May amounted to 1,52 piculs, valued at 38,649 yen. During the five months ended May 31 they were as follows:—

	1920	1921	1922
Piculs	10,694	2,654	5,840
Yen	500,207	55,190	143,727

LAVERNER.—French oil with 36 per cent. ester is offering at from 13s. to 13s. 6d. per lb., spot.

LEMON is steadier at 2s. 10d. c.i.f., and from 2s. 11d. to 3s. per lb. on the spot.

LEMONGRASS.—Some sellers make the spot quotation of Cochín firm at 2½d. per oz., but 2½d. would probably be in other directions. Shipment price is higher at 2 7-16d. c.i.f.

MINT.—Japanese dementholised Kobayashi-Suzuki is scarce on the spot, and dearer at 5s. 4½d. per lb. For shipment 5s. 1d. to 5s. 3d. c.i.f. would probably have to be paid. The spot price may advance further.

The exports from Japan during May amounted to 23 piculs, valued at 38,649 yen. During the five months ended May 31 they were as follows:—

	1920	1921	1922
Piculs	1,401	726	619
Yen	1,024,435	188,207	167,070

ORANGE.—Sicilian sweet is unchanged at 12s. to 12s. 6d. per lb. on the spot and 11s. 6d. c.i.f.

PALMAROSA, in pots, is dearer at from 15s. 6d. to 15s. 9d. per lb. on the spot.

PEPPERMINT.—American tin oil is advancing; spot sales have been made at 10s. to 10s. 6d. per lb. Some brands are held for 11s. on cabled instructions.

PETITGRAIN.—Paraguayan continues dull at 7s. 6d. per lb. on the spot.

SAGE.—Spanish is offered at 2s. 6d. per lb. on the spot.

SANDALWOOD.—West Indian is easier at 16s. 6d. per lb. on the spot. West Australian is offering at 15s. for 70 per cent. alcohols; 17s. for 85 per cent., and 22s. 6d. for 90 per cent. B.P. East Indian is unchanged at 25s. to 27s. 6d. per lb.

SPIKE.—Spanish is unchanged at from 3s. 4d. to 3s. 9d. per lb., according to seller.

THYME.—Spanish red has been in good demand. The following are c.i.f. quotations: For 20 to 25 per cent. 5s. per lb., 30 to 35 5s. 6d.

Pharmaceutical Chemicals, etc.

THERE is little of interest to report, as business has naturally been interrupted by the holidays, and during the few days under review little was done. Prices are about the same level, with a slightly weaker tone in citric and tartaric acids, bromides, etc. Last week's remarks regarding the position of German imports are being borne out. German shippers seem unwilling to fulfil their obligations under old contracts which, owing to the fall of the mark, now incur a loss instead of a profit. The fall in the price of vanillin appears to have been stopped by the higher spot price of cloves.

ACETANILIDE.—Actual value is 1s. 4d. per lb., on the spot, but some holders are still quoting about 1s. 3d.

AMIDOPYRIN is freely offered round about 17s., with very little doing.

AMMONIUM BENZOATE remains slack at 4s. per lb.

ASPIRIN is firm at 3s. per lb., which can still be shaded 2s. 10d. in some directions.

BARBITONE.—Some holders are not quoting less than 9d. to 10s.

BENZOIC ACID is tending firmer at 1s. 7½d. to 1s. 9d. per lb.

BENZONAPHTHOL is easier at from 4s. 9d. to 5s. per lb.

BETANAPHTHOL.—Resublimed is quoted easier at 2s. 3d. to 2s. 6d. per lb.

BENZALDEHYDE (0.03) is steady at 3s. per lb.

BROMIDES have quietened down considerably. Ammonium, 11d. to 11½d.; potassium, crystals and granular, 1d. to 9½d. (English makers quote 10d.); sodium, crystals and granular, 9½d. to 10d. per lb., as to quantity.

CALCIUM LACTATE is dull and steady at 2s. 2d. to 2s. 3d. per lb.

CHLORAL HYDRATE.—Duty-paid might be obtained at 7d. for large lots, with 4s. 9d. the price for smaller parcels.

CITRIC ACID.—Plenty of material appears to be on spot, and, as buyers are less keen on obtaining supplies, the market is decidedly easier. On the spot, about 2s. 3d. and upwards, as to quantity, is quoted.

COCAINE HYDROCHLORIDE.—The spot quotation is weak about 16s. per oz.

CREOSOTE B.P. is steady at 2s. 8d. to 3s. per lb.

CREOSOTE CARBONATE is still unsteady on quotation, with little business; about 10s. is asked for little lots.

ETHERS.—As briefly announced last week, the price of ethylated ethers has been reduced by 1d. per lb., as follows: for s.g. 0.735 1s. 1½d. per lb. is now quoted; 720 is 1s. 4½d.; 0.717, 1s. 8½d.

GUAIACOL CARBONATE continues irregular on quotation, with some holders said to be willing to accept less to effect sales; nominal at 8s. 9d. to 9s. per lb.

HEXAMINE is now steady at 3s. 1d. to 3s. 3d. per lb., and there has been an improved inquiry on the market.

METHYL SALICYLATE is steady at 2s. 3d. to 2s. 6d. per lb.

METHYLSULPHONAL is offered freely in the region of 15s. per lb.

PARAFORMALDEHYDE remains level on the week at about 1s. per lb., but there has been very little doing.

PARALDEHYDE has been more inquired for, and is now steady at 1s. 5d. to 1s. 6d. per lb.

PHENACETIN is firmer at from 5s. 3d. to 5s. 6d. per lb., as to quantity.

PHENAZONE is inclined to be weak as offered at 7s. 3d. per lb.

PHENOLPHTHALEIN is fairly steady at the better figure of 3s. 9d. per lb.

PIPERAZINE is offering on spot at 3s. 9d. per oz., but not much is being sold at that rate.

POTASSIUM PERMANGANATE, B.P., continues in fair demand, and imported material has been selling at the slightly cheaper rate of 9d. per lb.

POTASSIUM SULPHOGUAIACOLATE is easier at 5s. 6d. to 5s. per lb.

RESORCIN is easier at 6s. 3d. to 7s. per lb.

SALICYLIC ACID is firm as last quoted—1s. 5d. to 1s. 6d. per lb. for B.P.

SALOL is steadier at last week's cheaper rate of 1s. 10d. to 2s. per lb.

SODIUM BENZOATE is firmer at 1s. 6d. to 1s. 9d. per lb.

SODIUM DIETHYLBARBITURATE is easier at 17s. 6d. per lb.

SODIUM SALICYLATE continues steady at unchanged rates; powder, 2s. 1d. to 2s. 2d.; crystals, 2s. 3d. to 3s. 4d.; physiologically, pure, about 2s. 9d. per lb.

SULPHONAL continues dull at 14s. 6d. to 15s. per lb.

TANNIC ACID.—Leviss is in active demand at 3s. 3d. per lb. Replacement stocks are costing importers more than this, and an early advance in price is probable.

TARTARIC ACID on spot is slightly easier at about 1s. 4½d. per lb.; demand is light. Spot supplies are now good.

THYMOL is unchanged at 20s. to 22s. per lb.

VANILLIN.—Business has been done at 33s. 6d., but from 34s. to 34s. 9d. per lb. is now the current range, according to origin.

Industrial Chemicals, etc.

London, Wednesday, August 9.

With the holiday season now at its height, trade has perhaps been as good as can be expected. Acetic acid is especially firm, with a keen demand for material as it comes to hand. The British makers of caustic soda, etc., have made the reductions mentioned in last week's report.

ACETIC ACID is very firm, with supplies on spot very restricted; 80 per cent. pure, £45; 80 per cent. technical, £39; 98 per cent. glacial, £67 to £68 per ton, in casks and demijohns, ex wharf, London.

ACETONE is steady and in fair request on spot at £76 to £77 per ton, in drums, for British specification material.

AMMONIUM (ANHYDROUS) tends to go slightly cheaper; offers are weak at 1s. 9d. per lb. for 99.95 per cent. material.

AMMONIUM CHLORIDE is a shade easier at about 32s. 6d. to 33s. per cwt.

AMMONIUM SULPHATE for export is available in limited quantities only, for which a good demand is coming to hand. Agents quote at about £17 per ton.

ARSENIC.—There is no indication of any weakening, the market being dominated by the marked scarcity of Cornish white powder, and it is difficult to find sellers at anything below £42 a ton. Home production being very low, with no prospect of any recovery for some time at any rate, the continuation of high prices is inevitable. Grecian is purely nominal in the absence of fresh offers.

BARIUM CHLORIDE (98/100 per cent.) is unchanged at £22 10s.

BLEACHING POWDER (35/37 per cent.) is in limited demand, with quotations round about £12 10s. to £13 per ton.

COPPER-SULPHATE.—The general demand is quiet, and the market has so far been but little affected by the strong tendency of the metal. Evidently competition for export business is as keen as ever. The price mentioned in some quarters of £23 a ton f.o.b. for casks seems rather fictitious, seeing that orders are easily placed with Lancashire makers at a little below £27, while this figure is fairly well representative of the market. The home trade demand continues disappointing. The demand on the Continent is reported very quiet.

CREAM OF TARTAR is now in good supply on spot, and offering at about 110s. per cwt. for B.P. material, with the demand rather poor. Forward quotations are being made at 108s. c.i.f.

EPSOM SALT, commercial quality, is steady on spot at £6 and upwards per ton.

FORMALDEHYDE is steady at £70 per ton on the spot. There is some inquiry for the little material about.

GLAUBER'S SALT, commercial quality, is selling in the region of £5 per ton, in single bags.

OXALIC ACID is steady at 7½d. per lb.

POTASSIUM BICHROMATE is in better demand and steady at about 6½d. per lb.

POTASSIUM CHLORATE continues to be inquired for at 4½d. and 4½d. per lb.

POTASH, CAUSTIC, (88/92 per cent.) on spot is steady at about £31 10s. per ton.

POTASSIUM PRUSSIAN on the spot is firm, with yellow worth about 1s. 6d. to 1s. 6½d. per lb.; there is not much about.

SAL AMMONIAC.—Last week's lower prices are being maintained, but business is slow. Dog-tooth crystals, 52s.; medium-sized crystals, 47s.; fine white crystals, 32s. 6d.

SALTCAKE is flat at from £4 per ton and upwards.

SODA ASH (58 per cent. light alkali) has not improved in demand. In London, about £9 to £9 5s.; the North, £8 5s. per ton. Makers' price to domestic consumers on contract, £7 17s. 6d. per ton.

SODA CRYSTALS, from British makers to domestic consumers, on contract, have been reduced to £5 15s. per ton, in bags, carriage paid to destination.

SODIUM ACETATE remains dull and unchanged at £23 10s. per ton.

SODIUM BICARBONATE, from British makers for home trade on contract, is now at the cheaper rate of £10 10s.

per ton, in bags, delivered. Spot parcels are at about £10 15s.

SODIUM CHLORATE is steady, and slightly active, at 3½d. to 3¾d. per lb.

SODA, CAUSTIC.—British makers have reduced their prices to domestic consumers on contract to the following rates:—70/72 per cent., £20 5s.; 76/77 per cent., £22 5s. per ton. Dealers are quoting at: 70/72 per cent., £20; 76/77 per cent., £22 per ton; ex wharf, shipping port.

SODIUM HYPOSULPHITE.—Pea crystals are dull on spot, with values about the same, at £19 10s. per ton, in 1-cwt. kegs; commercial quality is quoted at £14 per ton.

SODIUM NITRATE remains slow of sale in the off season, quoted at £14 10s. per ton.

SODIUM PRUSSIAN is tending easier on spot at 11¾d. per lb.

ZINC-PRODUCTS.—The tendency continues firm, the developments in metallic zinc having had a stimulating effect. Zinc oxide is again dearer, with a well sustained good demand for the home trade, while a fair amount of export business is being done. Quotations now range from about £39 to £43 a ton, free on trucks at works, according to quality. The demand in America has also developed largely, and additional manufacturing plants have been erected there recently. Zinc ashes and zinc dust are firmly held at late rates.

COAL-TAR PRODUCTS, ETC.—**PITCH** is firm at 77s. 6d. per ton, with the demand good. **ANILINE OIL** and **SALT** are nominal at 1s. per lb.; packages free. **PURE METHYL ALCOHOL** is easier at £63 per ton, at which figure the market is firm. **CRESYLIC ACID** is firm at 2s. 4d. per gallon, naked, at makers' works. **CREOSOTE OIL** continues steady round about 6d. per gallon. **CARBOLIC ACID CRYSTALS** are unchanged at 5¾d. per lb. f.o.b. **PYRIDINE** is quiet and steady at 5s. 9d. per gallon. **HEXAMETHYLENE** is unchanged at 3s. per gallon. **NAPHTHALENE** is asked for occasionally, with £17 per ton the quoted price. Crude, £4 to £7; crystals, £15; powder, £16; balls, £25; candles, £34; tablets, £34 per ton; packages free.

Fixed Oils, etc.

DURING the holidays business has been generally restricted. Lined oil is barely maintained on spot. American turpentine is once more quoted at much lower figures on the week. Palm oil, which was in good demand for some time, has now quietened down, and current prices are cheaper.

ACID OILS.—This market holds firm, and spot supplies are scarce. **COCONUT**, 37s. 6d.; palm-kernel, 37s. 6d.; groundnut, 36s. 6d. **CASTOR OIL**—Ex mills, Hull prices are unchanged, with the market slack. **Pharmaceutical**, 57s.; first pressings, 52s.; second pressings, 50s. **COCONUT OIL** has been quiet and unchanged. **Deodorised**, 47s.; **Cochin**, 46s.; **Ceylon**, 40s. 6d. **COTTONSEED OIL**—**Deodorised** is slightly easier at 50s. **Common edible** at 47s., **soapmaking** at 45s., and **crude** at 42s. are unchanged. **GROUNDNUT OIL**—Values are unchanged with **Deodorised**, 57s.; **crude Oriental**, 50s. **LINSEED OIL**—The undertone has been rather easier, in sympathy with weaker reports from the River Plate and North America under fairly encouraging crop news, although the Canadian crop is now in need of dry weather. The outlook in India is said to be satisfactory. There is no indication of heavy supplies coming from the River Plate, but the unshipped surplus left there should be about sufficient, with the Indian supplies to come forward, to meet crushers' needs, unless America again places orders for big quantities at the main source. **Raw, naked**, on spot, is 44s. 6d.; **August**, 42s.; **September-October**, 39s. 3d.; **September-December**, 37s. 9d.; **Hull**, on the spot, 43s.; **August**, 41s. 6d.; **September-December**, 37s. 6d. **PALM-KERNEL OIL**—With business very slow, values are quoted level on the week. **Deodorised**, 47s.; **crude**, 40s. **PALM OIL** closes weak and at slightly lower rates, with little or no activity. **Lagos**, 34s.; **softs**, 32s. 6d.; **hards**, 32s. **RAPE OIL**—**Refined** is steady at 52s., but the demand is still light; **crude** is 47s. to 48s. **SOYA BEAN OIL**—**Steadier** after recent decline in values, but is still flat. **Deodorised**, 48s.; **crude Oriental**, 39s. 6d. **TURPENTINE**—In the present subdued trade demand there

seems enough spirit available on the spot and coming along to keep things going. There is not much alteration in the position of the market, but an upward reaction at no distant date would not cause any surprise. A revival of buying in America would quickly be reflected in this market. **Spot** is lower at 37s. per cwt. **August**, 87s.; **September-December**, 88s. 9d.; **January-April**, 90s.

ANIMAL AND FISH OILS, TALLOW, ETC.—**Tallows** have been quieter since the last auction, and are at slightly lower rates. **Fish oils** have been quiet. **Neatsfoot oil** is scarce on the spot. Other products are dull and unchanged. **BONE GREASE** is a shade easier. **Pale water**, 3s. 6d.; **brown**, 31s.; and **benzine**, 31s. **Neatsfoot oil** is easier on the spot at 5s. 3d. per gallon. **Pale horse oil** is offering in small lots at 38s. per cwt. **delivered**. **English lard oil** is unchanged at 62s. to 74s. per cwt. **American prime winter strained lard oil**, **spot London**, 72s. **Fish oils** are dull, but prices quoted are so far maintained, although they are not steady. **Filtered pale whale**, 37s. to 42s.; **filtered brown**, 30s.; **filtered dark brown**, 27s.; **thickened**, 39s.; **brown whale cake**, 23s.; **brown stearine**, 21s.; **refined sperm oil**, 39s.; **best refined southern sperm oil**, 40s.; **seal oil**, 24s. to 40s.; **white seal oil**, 42s.; **English coast cos.**, 30s.; **hardened whale oil**, 39s. to 42s.; in barrels, ex wharf, **London**. **Cheaper prices** quoted ex provincial ports. **Japanese fish oil**, in cases, c.i.f. for shipment, 23s. **Tallows**.—A steady tone is maintained in this market, and for some grades slightly higher prices are being asked. At the recent public auction sales were slow and the market closed easier, with sales good at current rates. **Australian**, **fine mutton**, 41s. 6d.; **fine beef**, 42s. 6d.; **good mixed**, 40s.; **inferior**, 35s. to 35s. 6d. There will be no auctions this week.

LUBRICATING, BURNING AND MINERAL OILS, ETC.—Business has been decidedly slow, but prices are so far maintained with the exception of benzol, which is a point lower. **Lubricating oils** are not at all firm on spot. **BENZOL** is cheaper, at 1s. 10d. per gallon, f.o.r. maker's works, in buyers' packages. **BURNING OIL**—**Crude No. 3**, 8½d.; **No. 2**, 8d. per gallon, barrels free. **FUEL OIL**—905-910 per cent. gravity, £5 per ton; 950 gravity, £3 12s. 6d., ex tank. **NAPHTHA** is steadier at 1s. 10d. per gallon. **SOLVENT NAPHTHAS**.—90/100 and heavy 90/100 are both unchanged at 2s. per gallon, drums extra, with little doing. **PARAFFIN WAX** and **SCALE** is steady at the rates last quoted. **Wax**, 2½d. to 3½d. per lb. according to melting point. **Scale** is firm at 2d. per lb. on spot for 122/24 f., and 1½d. c.i.f. **PETROLEUM OILS**—**American standard white**, 1s. 4½d. **Water white**, 1s. 5d. per gallon. The market stands firm. **PETROLEUM JELLIES**.—There is no change. **Snow white**, £65; **White B.P.**, £63; **yellow**, from £24 to £43; **red vet.**, £19; **ruby red**, £21; **dark stiff green**, £18 10s., ex wharf, **London**, barrels free. **SPECIAL OIL** for **Diesels** and **motors** is unchanged at 10d. per gallon, barrels free. **WHITE OILS**.—Values are not steady. **Special No. 1**, £43; **No. 1**, £39 10s.; **No. 1A half-white**, £25, in drums; **No. 2 half-white**, £28, in barrels, all ex wharf, **London**. **LUBRICATING OILS**.—There is no further change to report on the spot or shipment prices. **Pales**, £12 10s. to £24 10s.; **Reds**, £15 to £30; **dark cylinders**, £15 to £35; **filtered cylinders**, £20 to £37; **blacks**, £8 to £19, all ex wharf, **London**, less 2½ per cent. **SOLUBLE OIL**, £23 10s.—per ton.

French Chemical Products

Paris, August 5.

THERE has not been a great deal of change in the various sections of the chemical trades. Outside competition, especially on German account, continues to make itself felt in certain directions. Articles used for paints and varnishes, as well as bleaching material and dyes, in addition to heavy acids, particularly sulphuric, have been commanding a share of attention. In other products, however, market conditions have remained rather listless. Ammonia and potash products, coal-tar products, such as benzol, toluol and creosote, and aniline salts are weaker. Trading is particularly difficult in the pharmaceutical section. Synthetic products are affected by the cheaper terms for German goods. Soda products are easily sustained in value where not showing any advance. Sodium sulphate has attracted keen demand at increased prices, which also applies to bichromate of soda. Resin is as firm on this side as at either London or Savannah.

whereas spirit of turpentine lost some ground, this being due to the present lack of demand, which, however, is believed to be only temporary. The following are some of the current market quotations for chemical products:—

Kilo (except where otherwise stated).	Kilo (except where otherwise stated).
Ammonium carb. Engl., per 100 kilos .. 180 to 190 fr.	Nickel oxide .. 12 to 13 fr.
Antimony, white oxide pulv. .. 1.50 fr.	Nitric acid, ord. 95 to 118 fr.
Antipyrine .. 520m.	Phenacetin .. 550m.
Arsenic, white pulv. .. 2.10 to 2.15 fr.	Phenolphthalein .. 40m.
Benzonaphthol (lb.) .. 6s.	Potass. bromide .. 8.00 fr.
Bismuth salicylate .. 57 fr.	Potass. caustic, 88-92°, Engl., a ton .. £40 to £41
Bismuth subnitrate .. 55 fr.	Potass. chlor. .. 23.0 fr.
Boric acid cryst. 3.15 to 3.30 fr.	Potass. iodide .. 90 fr.
Caffeine (lb.) .. 15s. to 16s.	Potass. nitrate (per 100 kilos) .. 150 to 155 fr.
Chloral hydrate .. 12.50 fr.	Potass. permang. 6.85 to 6.90 fr.
Chloroform .. 10 fr.	Pyramidon .. 1850m.
Citric acid .. 12 to 13 fr.	Quinine sulphate .. 3.30 fr.
Cocaine hydrochlor. .. 1,350 fr.	Sodium arsen. .. 3 fr.
Codine .. 1,190 to 1,200 fr.	Sodium bicarb. .. 0.90 fr.
Cresote (lb.) .. 3s.	Sodium borate .. 2.20 fr.
Digitalin cryst. (gram) .. 125 fr.	Sodium sulphate 0.60 to 0.65 fr.
Formic acid, chem. pure .. 3.50 to 4 fr.	Sodium benzoate 55m to 60m.
Glycerophosphate, lime (lb.) .. 7s. to 8s.	Sodium cadocylate .. 130 fr.
Glycerin .. 4.50 fr.	Sodium methylarsenate .. 6,000 fr.
Guaiacol cryst. .. 65 fr.	Sodium salicylate .. 180m.
Iodoform .. 120 fr.	Sodium phosphate .. 3 to 3.25 fr.
Magnesium sulphate .. 1.20 fr.	Salicylic acid .. 165m.
Menthol (lb.) .. 22s.	Sulphuric acid ord. (per 100 kilos) .. 15 to 25 fr.
Methyl salicylate .. (lb.) .. 2s.	Sulphuric acid, pure (per 100 kilos) .. 140 to 150 fr.
Morphine hydrochlor. .. 725 fr.	Tartaric acid, pwd. cryst. .. 7 to 7.50 fr.

German Chemical and Drug Markets

"INTERNATIONAL politics have now become a lawyers' business, and two lawyers rule the world," is the statement made in the introductory remarks to the market report, dated August 1, issued by a leading Hamburg wholesale drug house. Germany's currency is on the way to emulate that of Russia and of Austria. The chemical and drug markets are both very brisk, but business no longer rests on a solid foundation; prices, on the whole show a tendency to advance. The following quotations are in marks, per kilo:—

ACETIC ACID.—Glacial, 98/100 per cent., m. 130; for export, 255 per ton; 80 per cent., m. 105; for export, 243 per ton. ANETHOL has been neglected at m. 850.

BALSAM OF PERU.—Original genuine, m. 1,600. Ph. G.V. has been sold at m. 600; offered for export at 7s. per kilogram.

BENZALDEHYDE, almost free from chlorine, for foodstuffs.—Manufacturers have advanced the price, and spot stocks are almost cleared. Quoted at m. 225; prices for export quoted on demand in the currency of the country of destination.

BENZOIC ACID.—M. 250, and is in demand for export at m. 300.

BUCKTHORN BARK.—Supplies of German bark are scanty, but Poland is now appearing on the market as a source of supply, and is offering prime quills at m. 55, cut bark at m. 70, for August delivery.

CAFFEINE (PURE) has been in demand at m. 3,100, and for export at m. 3,200.

CAFFEINE SALTS.—M. 1,400.

CALAMUS ROOT has been briskly sold for export at m. 32, while peeled roots are quoted m. 85.

CITRIC ACID.—In spite of the further advance in price, there is a brisk demand. Offered at m. 600, for export m. 650.

COUMARIN has been advanced by manufacturers, and a brisk business has been done both for the home as well as for foreign market. Offered at m. 1,900, and crystals for export at m. 2,100.

CREAM OF TARTAR, 98/100 per cent., is very scarce at m. 220; for export, prices on application.

HELIOTROPINE has been sold in small amounts at m. 1,300.

MENTHOL CRYST. is scarce and firm at m. 6,000 for orders of a case; broken bulk, m. 6,200.

MILK SUGAR has advanced and is now offered at m. 145; the price for export is based on the equivalent of m. 185.

SALICYLIC ACID.—The home demand at m. 260 has declined; on the other hand, foreign buyers have bought up the whole of the local stocks at m. 350.

SANTONIN.—M. 190 are being willingly paid for 1 gram.

SODIUM BENZOATE has been in brisk demand and has advanced to m. 250; for export m. 300 has been paid.

STRAMONIUM LEAVES.—Second quality has been sold for export at m. 45.

TARAXACUM.—Spot stocks are entirely cleared, and only August-September delivery is offered at m. 50.

VALERIAN ROOT is scarce and in demand at m. 150 for entire, and m. 175 for cut roots.

VANILLIN.—The price has further advanced to m. 6,500; for export, m. 7,500.

Italian Chemical and Drug Markets

Genoa, July 31, 1922

THE Italian lira improved during July, bringing the English pound sterling from lire 101.50 to lire 97.50 at the end of the month, and the United States dollar from lire 24.50 to lire 21.50. Although the Italian market suffered on this account, as well as from the fact that money continued scarce and the political situation was uncertain, orders were to be noted from drug stores, large pharmacists, chemical works, etc. Some of the approximate prices per kilo (except where otherwise stated) were as follows on the Genoa market:—

	Lire.		Lire.
Acetylsalicylic acid .. 45 to 55		Milk-sugar crystals .. 16 to 18	
Amidopyrin .. 260 to 280		Morphine hydrochl. 2,000 to 2,550	
Ammonium bromide .. 12 to 14		Opium 10%, Smyrna .. 122 to 140	
Antipyrine .. 140 to 150		Phenacetin .. 120 to 150	
Benzonaphthol .. 125 to 130		Potass. brom. cryst. .. 8 to 10	
Boric acid, crystals and powder (ton) 7,700 to 8,000		Potass. iodide .. 160 to 175	
Boric acid, flakes .. 7,500 to 8,100		Potass. sulphoguaic. 125 to 140	
Caffeine, pure .. 190 to 200		Quinine hydrochlor. 600 to 650	
Calcium glycerophosph. .. 50 to 60		Quinine sulphate and bisulphate .. 400 to 450	
Camphor, Japanese .. 45 to 50		Resorcin .. 65 to 75	
Castor oil, medicinal .. 7 to 8		Salicylic acid .. 12 to 15	
Chamomiles .. 8 to 10		Salol .. 50 to 60	
Chloral hydrate .. 42 to 45		Sodium benzoate .. 15 to 18	
Chloroform .. 15 to 18		Sodium bicarb. (ton) 1,800 to 2,000	
Citric acid, crystals .. 19 to 20		Sodium bromide .. 10 to 12	
Cocaine hydrochlor. 2,200 to 2,500		Sodium glycerophosphate .. 25 to 30	
Codine, pure .. 3,100 to 3,500		Sodium methylarsenate .. 260 to 300	
Cresote, wood .. 40 to 50		Sodium salicylate .. 1850 to 20	
Guaiacol carb. .. 160 to 185		Strychnine nitrate .. 1,100 to 1,200	
Guaiacol crystals .. 130 to 150		Tannic acid, leviss .. 40 to 50	
Guaiacol pure .. 90 to 100		Tartaric acid, crys. .. 12 to 13	
Hexamine .. 90 to 100		Tartaric acid, pwd. .. 12 to 13.50	
Hydroquinone .. 43 to 55		Terpene hydrate .. 20 to 24	
Iodine, resublimed .. 190 to 200		Theobromine, pure .. 205 to 215	
Linseed meal, pure .. 1.90 to 2.60		Thymol .. 300 to 350	
Magnesia, calcined .. 11 to 12.50		Vanillin .. 400 to 450	
Menthol .. 280 to 300		Vaseline .. 6 to 10	
Methyl salicylate .. 36 to 40		Zinc oxide .. 5 to 6	

The second price list, issued by the military hospital of Turin, for the chemicals and pharmaceutical products received from Germany on account of war reparation, and placed on sale, was as given below at per kilo:—

	Lire.		Lire.
Acetaldehyde Delain .. 70		Magnesium glycerophosphate .. 80	
Acetyl salicylic acid .. 48		Magnesium salicylate .. 35	
Amyl acetate Merck .. 40		Manganese glycerophosphate .. 100	
Amyl salicylate .. 75		Mercury salicylate .. 80	
Antipyrine .. 120		Methyl salicylate .. 39	
Antipyrine salicylate .. 120		Naphthol, beta .. 25	
Aspirin, Bayer .. 200		Phenacetin .. 110	
Benzoate of soda .. 14		Pyramidon .. 225	
Benzonaphthol .. 108		Pyramidon salicylate .. 230	
Bismuth salicylate .. 65 to 90		Potassium salicylate .. 60	
Bromide of camphor .. 90		Quinine bichlorhydrate .. 760	
Bromoform, pure .. 50		Quinine bisulphate .. 560	
Caffeine, Boehringer Soehne .. 180		Quinine bromide .. 740	
Camphor, synthetic, powder .. 70		Quinine cacodylate .. 890	
Cinchona bark .. 15		Quinine carbonate .. 950	
Chloral hydrate .. 40		Quinine citrate .. 685	
Chloroform, pure .. 2,000		Quinine chlorhydrate .. 720	
Cocaine, pure, or hydrochlor. .. 2,000		Quinine glycerophosphate .. 760	
Codine, pure, crystals .. 2,400		Quinine hyposulphite .. 950	
Codine, phosph. or hydrochlor. .. 2,000		Quinine phenate .. 650	
Ethyl benzoate .. 50		Quinine salicylate .. 650	
Ethyl bromide .. 60		Quinine sulphate .. 560	
Ethyl ether .. 25		Quinine tannate .. 320	
Ethyl salicylate .. 85		Quinine valerianate .. 855	
Eosin .. 2,700		Salicylic acid .. 12	
Formaldehyde .. 8.50		Salol .. 55	
Hypbutyl acetate Merck .. 35		Sodium salicylate .. 22	
Iodol .. 250		Strychnine, pure, crystals 1,200	
Iron glycerophosphate .. 70		Tannic acid .. 40	
Lime glycerophosphate .. 50		Urotropine .. 250	
		Veronal .. 180	

On all orders above lire 5,000 a discount of 3 per cent. was arranged; that was raised to 5 per cent. for purchases above lire 10,000, to 10 per cent. for purchases from lire 25,000 to 50,000, to 15 per cent. for purchases from lire 50,000 to 100,000, to 18 per cent. for purchases from lire 100,000 to 200,000, and to 20 per cent. for purchases from lire 200,000 to 500,000. To the hospitals a special discount of 20 per cent. was arranged.



Letters for this section should be written on one side of the paper only. The writer may adopt an assumed name for purposes of publication, but he must in all cases furnish his real name and address to the Editor.

The Struggle for Existence

SIR.—In advocating employees to accept 25 per cent. above pre-war wages, or even less, your correspondent "McCawber" (*C. & D.*, July 15, p. 106) either forgets or ignores the fact that the figures published as the cost of living refer to the land of dreams rather than actual life. I suppose "McCawber" pays rent and rates like the rest of us, and he is a fortunate individual if it is not the largest item in his weekly budget; my rent is now 40 per cent. above the pre-war figure, and the local rates are just double what they were in 1914, so that a salary based on a 25 per cent. increase would leave me with a considerable deficiency. I am surprised to find that he advocates a commission system of payment, and I wonder if he has had actual experience of this method in a concern with several counter hands. There is little doubt that in most cases it leads to abuse on all sides; by the nature of the retail drug-trade, commission is only paid on certain articles, the firm's own specialties, and is usually introduced, not for the benefit of the assistant, but to push the sale of those lines instead of advertised proprietaries. The consequence is that it generally leads to assistants worrying customers to buy "our own make" beyond the limits of good salesmanship, or even in flagrant cases wrapping up the commission line without saying anything, the excuse being ready to hand if the customer comes back to complain, that he was misunderstood. Then, again, the first counter hand, or manager, as the case may be, is not likely to let a profitable customer slip through his fingers, and takes care that the other assistants attend to the unprofitable ones, or are employed on filling up stocks or other work if things are quiet. From the other side of the question, has "McCawber" ever heard of firms paying a good commission on a line they wish to introduce, and, when the sale is established, either reducing or altogether stopping commission on that line, to the detriment of the men who made the sales? But the biggest objection from the assistants' point of view is that a commission is not really an extra payment, but is a means of obtaining men at a lower basic wage than could be offered them as a regular salary, just as the tipping system provides restaurants with waiters for next to nothing, and it is to be compared in my idea to those positions where you are offered a low salary and dinner and tea daily, and probably get a meal you cannot eat for the privilege of drawing two-thirds the proper rate of pay. Whether women are not so satisfactory as men is an open question, about which there has been a large and acrimonious discussion lately. In a heavy business they are not in their element; male customers cannot always be served by them, but, on the other hand, many ladies prefer to be served by a woman with various articles; but where most women beat the majority of men assistants is in their application to work. If I remember rightly, Mr. Micawber was the gentleman who was always waiting for something to turn up; I can assure your correspondent that in these days "Micawberising" will only lead to the dole.—Yours faithfully,

CHEERIBLE (15/7).

SIR.—"Jay Mack's" breezy letters can always be read with interest, and frequently with amusement, for his optimistic views plainly show that however matter-of-fact his advice may read, he writes from a summit that requires a good deal of oxygen to attain. On reading his latest effusion (*C. & D.*, July 22, p. 139) I cannot help wondering whether he is really serious, or whether he is quietly "pulling our legs." Just imagine a man, married, three children, fifteen years with Boots', offering £200 worth of furniture as part security for purchasing a business. I have had some first hand experience recently of looking at businesses with a view to purchasing on my

own account, and what the vendors require to-day is cash, something tangible, not merely promises but paid up, and moreover plenty of it. To judge by the inflated values which most of the men I interviewed placed on their businesses, you would never imagine that the chemist's trade is one which by all concerned is admitted not to pay, going to the dogs, crowded out of existence by big stores, etc. I did suggest to one or two vendors that we might arrange for a lump sum down and remainder in a year or two, and in each case the negotiations were broken off on the spot, the sales were for cash only. As to the advice to go as a manager for £2 a week with a view to purchase, when the prospective purchaser has found such an offer I advise him to have a hard-and-fast agreement in black and white to the effect that the owner will sell, or else he will find that, when he has done all the work of clearing up and reorganising the premises, he will be met with the reply that the matter has been reconsidered and the owner is not selling, but if he likes to remain as manager at £2 a week, etc., etc. Such an agreement, if he gets one, is likely to be made binding on both parties, so that he may find himself committed to the purchase of a business which he is unable to do anything with. Candidly, the sort of things "Jay Mack" writes about do not happen in real life except to the fortunate few, such as your correspondent, and whilst we hear all about the one or two successes we hear nothing about the hundreds who never arrive.

Yours truly,

CO-OPTIMIST (24/7).

SIR.—Since this controversy opened another big batch of qualified have been thrown on the market. How are they to live? Some employers are already lowering salaries to a mere living wage, knowing that they can easily replace a man at a moment's notice. The Pharmaceutical Society will have to get to work to save the situation or else be disintegrated by a revulsion of feeling of their inability to cope with the case. Here is a way in which they could help matters, and at the same time repay a little for their coffers. Everybody knows that the Society was never before in such a flourishing condition financially. Now let the Council set to work and buy businesses for those of their members who because of the war and various causes would probably be in business at the present time. A scheme modelled somewhat after a house-purchase policy is what I have in view. A member who has been qualified for, say, five years hears of a business for sale; he informs the Society, who would send an official to inspect the prospective business and interview the buyer, then reporting to the Council as to whether the price is satisfactory and the purchaser one who would be likely to carry on the business successfully. On receiving favourable assurances, the Society would then advance the purchase price, which would be returned at the end of an agreed period, probably five years, in quarterly payments. Interest paid on the sum loaned would probably be at the rate of 5 per cent. There are also plenty of positions that offer openings for chemists. New villages have sprung up under the building schemes which would give sustenance to chemists for years to come. The position of unemployed qualified men is very serious, so let the Society move now and at once. Driving tramway cars is not chemist's work.

Yours truly,

MAC (3/8).

Window-displays

SIR.—I have read the letter of "Eye Witness" (*C. & D.*, July 29, p. 183) with interest because we are just concluding a most successful window-display bonus scheme and competition in connection with Andrews Liver Salt. While I appreciate that there may be some special circumstances with regard to "Eye Witness" which apply to exceptional cases, I am sure that his experience is not that of the vast majority of your readers. Some thousands of pharmacists entered for our competition, and received a very satisfactory bonus for their window-show, apart altogether from the opportunity of competing for substantial prizes. We have had scores of letters from all over the country informing us that the individual displays have very considerably increased

sales over the counter to the advantage of everyone. A chemist's window is his principal salesman, and therefore he is quite right to look jealously after his interests. From the experience of our competition, however, we think that it would handsomely pay your readers to make a point of having a special window-display for an article, say, once in three weeks. The other two weeks could be used for showing goods in the ordinary way of trade, and if this method were adopted I am sure that experience would prove that the turnover all round would very considerably increase. A salesman who opens his bag and tries to sell a customer everything in it at the same time cannot hope to make very much of a success, and the tendency to-day, both from the manufacturers' and the retailers' standpoint is to specialise. The public, attracted by the originality and artistic merits of a window-display, would go into a shop to buy the article, and more than likely would see something else which they needed while inside. I am not writing this with the idea of "boosting" Andrews' Liver Salt in any way, but the letter appeared to the writer to be of such general interest to the profession that the other side of the question should be ventilated. An article which leaves a handsome margin of profit, and which is at the same time consistently advertised, week in and week out throughout the year, deserves the support of the retailers, but, unfortunately, because of the one-sided attitude of certain firms who do not allow a living margin of profit, the tendency for some people is to regard all articles alike, thereby making the innocent suffer with the guilty. I know that this letter will receive the support of many hundreds of chemists throughout the country who have proved by practical demonstration the merits and value of special displays.

Yours faithfully,

S. TRAVES,

Sales Manager, Andrews Liver Salt.

Newcastle-on-Tyne.

Free Gifts

SIR,—I quite agree with Mr. Thomas when he writes: "The business ideas of some members of our craft are often very strange." The fatuous policy of giving away goods which he would otherwise sell and of going to the trouble to use his time and pen to advocate such a policy is indeed singularly strange. One hears a good deal of the "inspired" Press. Is there possibly such a thing as "inspired" letters to the *C. & D.*? Mr. Thomas is to be congratulated on a very fine business. The disposal of 600 of these "stunts" in one day should, I think, constitute a record. . . . Since my last letter another offer to make use of my premises to give away some more foreign goods. Here it is: With every safety razor I am to give away three things this time, not one. A stick of shaving soap, a shaving brush, and a tin box. Somehow or other I have an idea I was in business to sell, among other things, shaving soaps and shaving brushes. Perhaps I am mistaken.

Yours faithfully,

Eastbourne.

ARTHUR MILLS.

Invoice with Goods

SIR,—While some wholesale houses regularly enclose invoices with goods, too many not only delay sending invoices for ten days or even a fortnight, but do not give any indication as to price or whether they have been able to complete order. The consequence is the retail price has to be guessed, with the chance of overcharge, and more than once at a loss. These delays are a great inconvenience to retailers and cause much annoyance. Lately goods from three houses were unpacked and could not be checked or put into stock for nearly three weeks, owing to absence of requisite invoices. In one instance the invoice showed goods sent and only half charged, goods sent and not charged, goods not sent but charged. It has occurred to the writer to have a printed slip to accompany orders: "If invoice cannot accompany goods please do not send them." The question then arises: Would the remedy be worse than the disease? It would not matter so much if the cost prices were put on each package. What is the experience of others?—Yours truly,

BUSINESS (28/7).

Subscribers' Symposium

For interchange of opinion among "C. & D." readers, and brief notes on business and practical topics especially new ideas

Treatment of Rheumatism.

Rheumatoid (5/7) writes:—I should be obliged if any fellow pharmacist who has been troubled with muscular rheumatism, could give a few details of any treatment he has found beneficial, particularly with regard to diet, etc.

Personal Weighing Machines

Referring to the inquiry of "Ponderosa" (*C. & D.*, August 5, p. 224), my experience after employing various kinds is that dial machines become inaccurate. A good standard upright weighing machine is best, with loose stone weights and provided with sliding pound and ounce weight. The latter can be used for "scotching" beam. A separate 1-lb. cradle is employed for babies.—*H. S.* (4/8).

Legal Queries

S. F. H. (3/7).—You do not fulfil the conditions for registration under the Dentists Act, 1921.

Dens (18/7).—The title for a tooth-powder which you give would not, in our opinion, be an unprofessional use of the dental titles protected by the Dentists Acts.

J. E. P. (43/6).—You may not repeat the prescription for pile ointment, containing cocaine, without a new prescription from a medical practitioner.

J. L. O. (14/7).—It is only prescriptions containing statutory poisons that must, according to the Pharmacy Act, 1868, be entered in the Prescription Book.

A. L. T. (25/7).—No licence is now required before opening a business, the regulation to that effect made under the War Emergency Act having expired.

Shibboleth (27/7) and *J. S. H.* (31/7).—The wording "chemist and dentist" on the shop window or brass plate would not, in our opinion, be contrary to the ethics of advertising which govern the dental profession.

W. A. D. (18/7).—REBATE OF SPIRIT DUTY on medicinal preparations cannot now be claimed after three months of the date when the spirits in respect of which the claim is made were used. (See *C. & D.*, October 8, 1921, p. 57).

C. W. D. (19/7).—It is not possible to lay down a rule as to the amount of a statutory poison which could be used in a preparation and come within the legal maxim of *de minimis non curat lex*. See *C. & D. Diary*, 1922, p. 236.

H. D. M. (1/8).—There are no restrictions in Ireland on the manufacture and sale of proprietary medicines except that, if they contain statutory poisons, the articles can only legally be sold by qualified persons. The Medicine Stamp Acts do not apply to Ireland.

T. & C. (19/7).—The formula or the reference to a standard book of reference required under the "known, admitted, and approved" remedy exemption of the Medicine Stamp Acts is required to be "in the label." It is not necessary, therefore, to reproduce the reference on the carton or in advertisements.

A. S. W. (12/7).—(1) The wording of the label you send does not render the preparation to which it is attached liable to medicine-stamp duty. (2) The way to find out whether a word will be accepted for registration as a trade-mark is to carry out the procedure outlined in the *C. & D. Diary*, 1922, p. 277.

Miscellaneous Inquiries

When samples are sent particulars should be supplied to us as to their origin, what they are, what they are used for and how. We do not undertake to analyse and report upon proprietary articles nor to publish supposed formulas for them.

R. S. H. (9/6).—LIQUID DOG SOAP.—See *C. & D.*, January 7, p. 52.

Comfort (15/7).—CORN SALVE.—The following is the formula for which you inquire:—

Salicylic acid	...	...	11 oz.
Resin	...	...	32 oz.
Lavender oil	...	...	2 dr.
Palm oil	...	...	8 oz.
Hard paraffin	...	...	16 oz.
Soft paraffin	...	...	32 oz.

W. A. (21/6).—LIQUID STOVE POLISH.—The following is a representative formula for the class of grate polish to which you refer:—

Ceylon plumbago	...	...	1 lb.
Naphthalene	...	...	1½ oz.
Resin	...	...	1½ oz.
Sugar	...	...	3 oz.
Oleic acid	...	...	1½ oz.
Aniline black	...	...	¼ oz.
Benzine	...	...	20 oz.
Water	...	...	20 oz.

Dissolve the naphthalene, resin and aniline black in the benzene and mix with the other ingredients. The amount of liquid can be adjusted according to the consistency required.

F. C. F. (10/7).—MARKINGS ON URINOMETER.—The scale on your urinometer is old-fashioned in having the word "diabetes" marked upon it and the closed diagonal with "H" and "S" engraved. You should take no notice of these, as they are not trustworthy. H to S marks approximately the range of the specific gravity of urine in health, and the higher gravity marked "diabetes" is suggestive, but not an infallible guide. The scale on the other side of the stem is the one to use. The zero figure is the specific gravity of water 1.000, and the other figures must be read as follows: 1.010, 1.020, etc., when the instrument floats at those levels, taking the reading from the surface level, not at the point where capillary attraction raises the surface immediately in contact with the scale. It is the common practice to omit the decimal and read the specific gravity as a thousand and ten-fifteen, or whatever it may be. To reduce the scale of which you enclose a sketch, the first two figures are omitted and only the tens and interpolated units are marked.

H. C. (8/7).—C. & D. RETAIL PRICE LIST.—The prices of ol. menth. pip. exot. and ess. menth. pip. exot. given in the Price List are correct for the redistilled variety. The price of the essence is naturally more than the oil on account of the use of high-priced alcohol, on which there is no rebate, and to this is added the cost in making. The average price of pot. nit. com. is 10d. per lb. In quantities it is less, but allowance must be made for the average buyer, for which the List caters. We have noted the absence of pot. nit. com. as sold in quantity, and propose adding it on the hundredweight quotation in a future List, but we should not quote it at 50s., since that is a very low price on which to sell it, 7-lb. lots—more or less. The average chemist pays a higher price owing to a smaller turnover. Your selling price on whatever the cost could be arranged according to the method given on the front page of the List.

H. A. (12/7).—(1) PRICE OF PRESCRIPTION.—The prescription is priced as follows, according to the *C. & D.* system:—

Quin. valer.	...	...	gr. xxiv.	12.0
Ferri valer.	...	...	gr. xxiv.	4.0
Zinci valer.	...	...	gr. xxiv.	4.0
Ext. valer.	...	...	gr. xxiv.	3.0
Ft. pil. 24	...	...		
Varnishing	...	...		6.0
Container	...	...		3.0
Dispensing oncost	...	...		10.0

Charge 3s. 6d.

42.0

(2) We thank you for your appreciative comments on the *C. & D.* Retail Price List, but your statement that the List gives only 37.5 per cent. per return is somewhat misleading when applied to the whole. The profit is on the price given, and in relation to turnover and only refers to that particular quantity. You will notice that the ratios of profit are various, not uniform, as some think. Each item is taken in relation to turnover for the whole country. In London, charges are higher, which makes the difference you have noted between the London List and the *C. & D.* List, the former being on local figures and ours on a national basis. The average profit per return is, you will find, 44.2 per cent.

Ann. (2/7).—DISPENSERS' STATISTICS.—(1) The average number of prescriptions dispensed per hour, i.e., compounding, labelling, wrapping, making allowance for other things than simple mixtures, lotions, liniments, etc., works out at nearly eight, or actually 7.6, based on specified tests. That is, when the dispenser devotes his whole time to the work. (2) If the dispenser only compounds and writes the labels, the number would be from 50 to 75 per cent. on the above figure. (3) The wages for a qualified dispenser to-day are from £4 to £5, according to experience and ability.

E. & L. (17/7).—STOCK-TAKING.—The process was outlined in the *C. & D.*, December 17, 1921, p. 51. We do not publish a book on the subject.

W. U. (26/6).—MODELLING WAX.—For modelling flowers, fruits, etc., pure beeswax, with a small proportion of lard and olive oil to give pliability, is used. Lewkowitsch, in "Chemical Technology of Oils and Fats," states that modelling wax used in Germany is usually prepared from:

Beeswax	...	...	5 parts.
Oil of turpentine	...	...	1 to 1½ part.
Sesame oil	...	...	¼ to ½ part.

For larger models, stearin or resin, or both, are mixed with bleached wax in definite proportions. Popular modelling wax in this country contains considerable amounts of paraffin wax, and also sulphur. Another kind consists of white clay, kept moist by the addition of a small amount of glycerin.

G. M. (13/7).—FASTENING GLASS LABELS ON DRUG-DRAWERS.—A saturated solution of shellac in spirit is employed for this purpose.

F. W. H. M. (20/7).—COLLOIDS IN DISEASE.—Mr. A. B. Searle's article on the administration of colloids in disease is the last article (beginning on p. 155) of the Second Report on Colloid Chemistry published by the Department of Scientific and Industrial Research.

Aegir (25/7).—The cost of living in New Zealand and this country is probably now about the same. salary you refer to would, therefore, be equivalent to the same amount in England.

Retrospect of Fifty Years Ago

Reprinted from "The Chemist and Druggist," August 15 1872

Pharmaceutical Education

Will the Pharmaceutical Council do us the honour of considering a suggestion from us on the provincial education question, which at least has the merit of being simple? ... Our scheme would be that the Council should engage three or four talented young men, students of its own school, whom it should be willing to "let out" as lecturers to provincial towns, on easy terms, for a few weeks at a time. The advantages of a plan like this would be manifold. The interest in local schools would assuredly die away before long, while a succession of lecturers would be likely to arouse and maintain vitality. The Society would have a perfect guarantee against any approach to cramming; and what is of no small importance, it would have positions to offer to its pupils, which would serve as distinctions, and at the same time would set apart a small number of men who would keep up the highest character of pharmacy. Of course, every town in Great Britain could not be supplied all at once, but if each lecturer had a district allotted to him for a few weeks at a time a fair portion of the country could be covered in the course of a year or two. By this plan, too the advantages of centralised and diffused efforts would be very fully combined.

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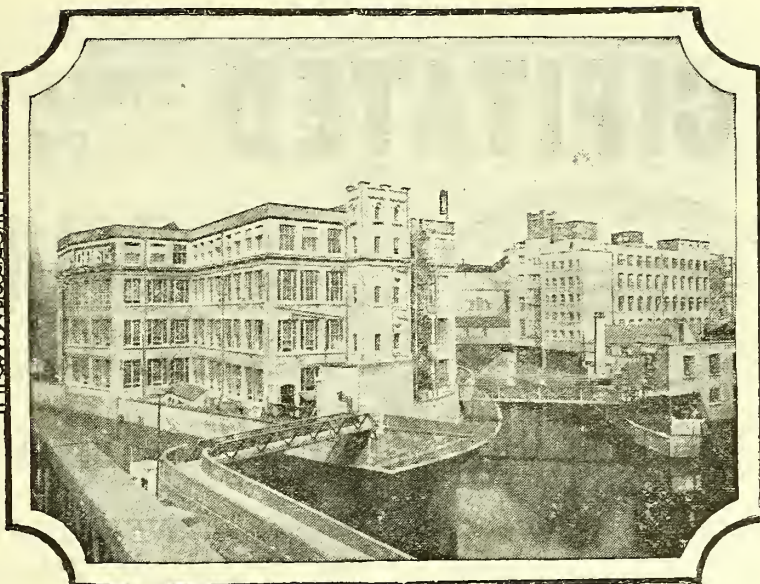


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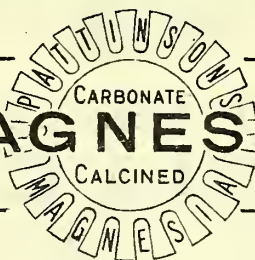
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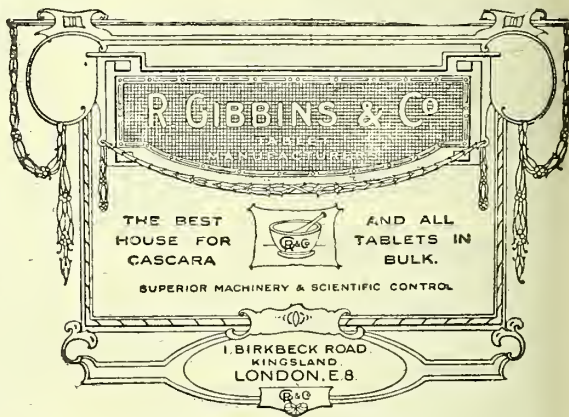
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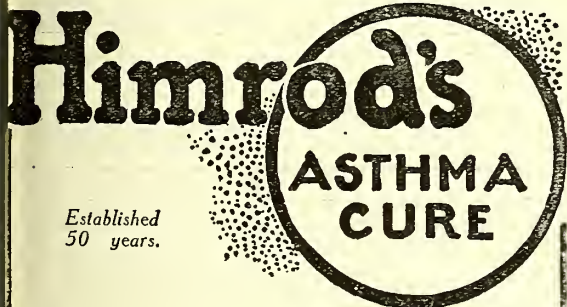
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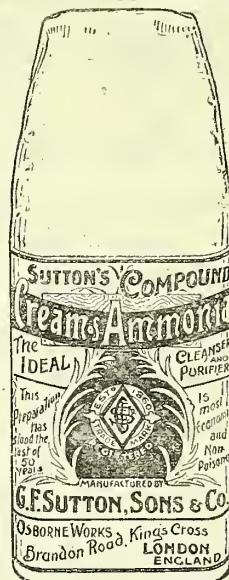
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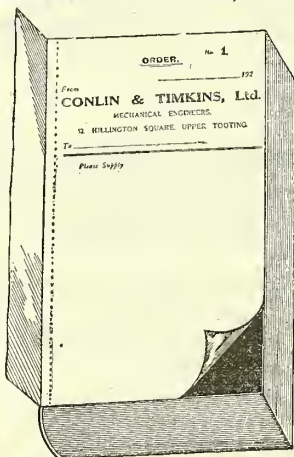
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33 $\frac{1}{3}$ % on cost to our DISTRIBUTORS and FREE CASES.

On and after July 1st, 1922, all orders amounting to gross value (£16 4s.) will be sent out in FREE CASES ; this will be a great advantage to our Customers who order direct, saving Carriage on returned empties, besides supplying Cases Free of Cost. Carriage paid upon orders amounting to £100.

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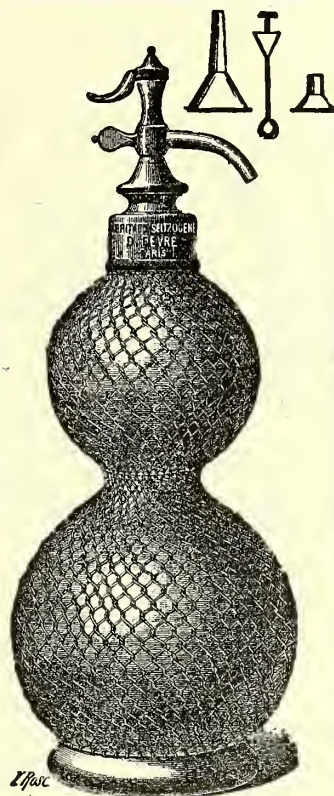
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THE CHEMIST AND DRUGGIST

SUPPLEMENT

42 CANNON ST.
LONDON E.C. 4

AUGUST 12, 1922

This Supplement is inserted in every copy of The Chemist & Druggist.

THE SUPPLY OF SUPPLEMENTS.

The clerical work in connection with the posting of spare copies of the Coloured Supplement week by week has increased to such an extent that we have been compelled to reorganise our system of distribution. Our readers will please note, therefore, that, in future, instructions can be accepted for not more than six successive issues of the Supplement at a time, and that in every case

Addressed Wrappers Stamped One Penny

must be sent. Loose stamps will not be accepted.

EARLIER CLOSING FOR PRESS. Will advertisers please note that until further notice it will be necessary that Advertisements ended for the Supplement must reach us not later than the **FIRST POST THURSDAY MORNING.**

CHEMISTS' TRANSFERS.

Messrs. ORRIDGE & CO., 56 Ludgate Hill, E.C.

Telephone No.: City 2283.

May be consulted at their Offices on matters of **SALE, PURCHASE and VALUATION.**

-LONDON, N. (Main Thoroughfare).—Ready money Retail Dispensary Business in prominent position; returns over 100 per ann. under management, at good prices; new lease to be granted; price £3,500; further details on receipt of advertiser's reference.

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-KENSINGTON.—Family Retail and Dispensing Business, established 75 years; returns, present rate, about £1,500 per annum; gross profit 40 per cent.; single-fronted shop; good stock; held on lease; rent £60, sublet £91. Price about £2,000.

-HYDE PARK (Near).—Old-established Retail and Dispensing Business; net profit in 1921 was £465; the upper part of premises is sublet, leaving the rent of the shop at £40 per annum; long lease will be granted. Terms, valuation of stock and fixtures and sum for lease.

-WESTERN SUBURB.—Good-class Suburban Business, Retail and Dispensing; returns last year, £2,200; at full prices; single-fronted shop, fitted in mahogany, and well stocked; held on lease at net rental of £55 per annum. Price to be arranged on application.

-HARLEY STREET (Near).—Retail and Dispensing Business; modern, well-fitted shop, fully stocked; returns exceed 100 per annum, with scope for considerable increase under personal supervision; new lease will be granted at rental to be agreed. To effect a speedy transfer, the sum of £2,000 would be accepted.

-LONDON, E.C. (Near Busy Station).—Very old-established Business, situated in one of the main thoroughfares; gross profits about £6,500, increasing; the premises are held on long lease. Further details on application.

8.—SUSSEX COAST (Popular Health Resort).—Cash Drug Stores, with Stationery, Confectionery, and Tobacco; returns, about £70 per week, more in season; there are two shops, with living accommodation; vendor owns the property, and would sell same or grant lease; to effect a speedy transfer a moderate sum would be accepted for the Businesses; suit unqualified.

9.—DORSET (Death Vacancy).—General Retail and Dispensing Business, with Optics; returns last year, £2,530; net profit, about 25 per cent.; the shop is well fitted and stocked; there is ample living accommodation; terms, goodwill £250, stock and fixtures at valuation; freehold, £2,000; part payment entertained.

10.—SOUTH WALES.—Old-established Business, with Wine and Spirit License; returns last year, £3,220, at good prices; house contains 10 large rooms, private entrance; 17 years' lease; no opposition; price to be arranged.

11.—EASTERN COUNTIES.—Unopposed Country Retail Business; very old-established; returns, present rate, £1,800 per annum, at good prices; single-fronted shop; good house, in excellent repair; private entrance, and large garden; 21 years' lease, at moderate rental; price about £1,200.

12.—BIRMINGHAM.—Small Glass Bottle Manufacturing Business, also Perfume Business; suitable as adjunct to an established Wholesale house; scope for considerable extension in energetic hands; 6 large workrooms; rent, £39 per annum; price £550.

13.—SCOTLAND.—Wholesale Business, established upwards of a century; a number of Proprietaries are included which are stocked by most Chemists; returns between £4,000 and £5,000; terms, stock and plant by valuation, and sum for goodwill to be arranged.

14.—NEWMARKET (Within Easy Distance of).—General Retail and Dispensing Business, with Kodak Agency; returns, present rate, approach £2,600 per annum; net profit, £600; double-fronted shop, well fitted, and fully stocked; long lease; further details on application.

VALUATIONS FOR STOCKTAKING.

Messrs. O. & Co. desire to emphasize the necessity of a periodical Statement of Account by which means alone Profit, and the value of Business, &c., can be determined. Involving as this does the labour of Stocktaking and Valuation, it is often omitted and eventually becomes the cause of confusion and loss.

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Telephone—1809 CENTRAL.

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2. EASTERN COUNTY.—Good-class light retail dispensing and family business, in busy town. Returns £3,000, and making £800 clear net profit, after paying all expenses. Good house and premises; 16 years' lease. Cash price, £2,100.

3. LONDON (ESSEX SUBURB).—Profitable cash retail and prescribing business. Returns between £900 and £1,000. Plenty of scope, low rent, part house available. Price about £450. Worth attention.

4. LONDON, S.E.—Middle-class light suburban retail, with Kodak's Agency. Returning over £1,800, under manager; good profits. Convenient house attached; low rent, on lease. Fully stocked. Price £1,400, or offer; only cash buyers entertained.

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2.—LONDON, W.—Retail Chemist and Druggist's Business; large double-fronted shop, well fitted; scope for energetic man; purchase must include freehold premises; three floors above shop, all let off, producing £6 a week; two workshops at rear; price, all at, £3,000; fullest particulars on application.

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4.—Small Wholesale Manufacturing Chemist Business for disposal; owners of several registered trade-marks.

5.—Proprietary Article for Sale; business has good connection among Chemists; full particulars on application.

6.—PORTSMOUTH.—Established over 20 years; Retail Pharmacy; well fitted and stocked premises, held on lease, 6 years to run, with 14 years option; rent, £40; dwelling accommodation; fullest particulars on application.

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We desire particularly to draw the attention of Colonial Foreign Subscribers to the fact that in cases where require partners, agents or assistants, or wish to sell businesses, an Advertisement in this Supplement, placed every copy of "The Chemist and Druggist," should be readiest means of helping them to attain their object. Tariff for such announcements is given under the appropriate headings in the Supplement. Instructions and remittance can be sent to us direct or through the advertising correspondents in this country.

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LANCASHIRE town, near Manchester.—Cash Retail and Prescribing Business, with N.H.I.; returns, over £3,000; good opportunity for young man; genuine buyers only; cash available; price £1,400. Apply, 25/10, Office of this Paper.

WAST town, health resort.—Good-class ready-money Retail and Dispensing Business; no N.H.I.; main road position; age returns, £1,400; well stocked and fitted; low rent and cash; good house (6 rooms), bath, vacant possession, nice garden; price £1,200; unique opportunity; owner otherwise engaged. K., 25/22, Office of this Paper.

LANCASHIRE.—(Death vacancy).—Genuine Cash Retail Business for sale in thickly-populated working-class district; no N.H.I.; good working stock; double-fronted shop; returns at £1,600 per annum; price, £900 (including premises), or offer entertained; further particulars on receipt of bank reference. Apply, 24/8 Office of this Paper.

VERPOOL (near to).—Good-class Family Retail and Dispensing Business; returns, about £3,300; comfortable living accommodation; freehold property, may be purchased, or mortgaged; terms, valuation of stock, fixtures, and goodwill; further details on receipt of banker's reference. Apply, 26/15, Office of this Paper.

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MODERN Drug Stores, situate in all-year-round health resort; well stocked and fitted; takings average £30 per week, capable of considerable increase under qualified management; ill-health of Proprietor cause of sale; price all at £950. Replies, 25/37, Office of this Paper.

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YOUNG energetic Partner required with good experience in Small Packed Goods, to control Wholesale and Travel; preferably able to drive car; capital required, about £1,000; large premises and sound connection. Please write fully to "Northerner," 24/35, Office of this Paper.

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SOUTH AFRICA.—Business man from South Africa, with chief offices in Johannesburg, at present in London, would be interested in securing representation in well-advertised Toilet and Drug lines. Only interested in real factors. 23/4, Office of this Paper.

AGENTS (commission) to introduce already well-known brands of Medical and Toilet products yielding big profit to Pharmacists. An advertising campaign of considerable magnitude starts in October. Ground not already allotted includes Ireland, Scotland, Cumberland, Westmorland, Durham, Yorkshire, Lincolnshire, Cornwall, Devon, Dorset, Somerset, Wiltshire, Kent, Sussex. Replies in confidence, with fullest possible particulars, to 9/288, Office of this Paper.

FIRM of Wholesale Chemists are desirous of getting into touch with manufacturers in England who wish to be represented in the Madras Presidency. Toilet Goods, Brushes, Tablets, Perfumery, and Druggist Sundries in particular. Apply, P.C.B., 49/16, Office of this Paper.

FIRM recommends thoroughly reliable, energetic man, with good connection in Midlands and South Midlands, with opening for one or two first-class lines. Reply "H.," 24/10, Office of this Paper.

WANTED, Buying Agency for one or two proprietary lines for Yorks. and Lancs. Advertiser has Ford van and warehouse; the above ground covered every three months. Chemist, 26/20, Office of this paper.

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DRUG Store, with living accommodation; neglected business entertained, scope for Photography; cash available; must bear strictest investigation; town or country. Full particulars of lease, turnover, price, etc., in first letter. Hussey, 7, Norfolk Terrace, Kenley Surrey.

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PHARMACIST, with extensive manufacturing and commercial experience, requires established business or considerable interest in same; London Manufacturing Wholesale or Mail Order preferred; certified accounts over period essential; capital at immediate command; confidence respected. 24/13, Office of this Paper.

PHARMACIST desires to purchase a Business, which must be genuine, and bear every investigation; neglected one not objected to if scope for increase; cash down and references willingly given. Replies treated in confidence. Berkshire, 25/21, Office of this Paper.

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[HOME.]

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BARNSELEY.—Qualified Assistant for mining district wanted, September 11; must be accustomed to N.H.I. and General Counter work and capable of taking charge. Usual particulars to Bellamy, Chemist, Barnsley.

BIRMINGHAM.—Qualified man wanted in good-class business; knowledge of Photography; must be a good salesman. Reply, stating salary required, age, height, and all particulars, to E. B. Whitehouse, Ltd., 601 Bearwood Road, Smethwick.

EXETER.—Wanted, as soon as possible, an unqualified Assistant; must be reliable Dispenser, capable Salesman, experienced in Photography; good appearance and address; permanency for right man. All particulars, including photograph (which will be returned) to 24/27, Office of this Paper.

GRAVESEND HOSPITAL, KENT.—The post of Lady Dispenser to this Hospital (72 beds) will be vacant on August 30, 1922, and the Committee invite applications from suitable candidates (Major or Minor M.P.S.). Full particulars can be obtained from the Secretary, to whom applications should be sent immediately.

LIVERPOOL.—Qualified Assistant required immediately; accustomed to N.H.I. Dispensing and Cash Retail trade; with knowledge of Photography and Window-dressing. Reply by letter, giving full particulars, age, experience, salary required (outdoor), etc., Chemist, 23 Canning Street, Liverpool.

LIVERPOOL DISTRICT.—Wanted, qualified Pharmacist with thorough knowledge of Optics. Apply, 25/15, Offices of this Paper.

LONDON, N.—Outdoor Assistant; one with good Dispensing and Photographic experience; for September 1 or earlier. Write, stating salary and experience, Nash, 82 Church Street, Stoke Newington, N.16.

LONDON, N.—Wanted, young married man for Branch Managership, qualified; house attached to shop; medium-class retail. Apply, giving full particulars as to age, height, experience, salary required, and photo if possible, which will be returned, 24/22, Office of this Paper.

LONDON, N.W.—Window Dresser required immediately, with experience and ideas in up-to-date Window Dressing; time to be devoted practically exclusively to window display. Give full particulars of experience in first instance, age, and salary required, 25/24, Office of this Paper.

LONDON, W.C.—Qualified Assistant, of good appearance and address, competent all round, and capable of taking charge; Continental experience desirable, not essential; permanency; outdoors. Apply, in (own hand) writing first, stating age, height, experience, and salary required. Please enclose copy of testimonials and recent photo., which will be returned. Cofman's Pharmacy, 6, Bloomsbury Street, W.C.

LONDON, S.E.—Unqualified Assistant, under 30, for busy cash business; must be reliable Dispenser and tactful Counter-man, with knowledge of Photography; good prospects for capable man not afraid of work; highest references essential; state age, height and salary required. 25/2, Office of this Paper.

LONDON, S.W.—Manager, with view to succession within the next 12 months, for brisk Cash Retail Business, with N.H.I. Dispensing; returns average £2,600, with scope for increase; net profit, about £650; rent, £48; held on long lease; the investment would require about £1,800. Apply, Orridge and Co., 55, Ludgate Hill, E.C.4.

LONDON, S.W.—An Assistant Dispenser, Hall qualification, is required at the end of September, at the Battersea Provident Dispensary; evening work only, 5 evenings weekly, hours 5.30 to 8.30. Apply, by letter only, stating age, experience, and salary required, to Mr. Hogg, 185, High Street, Battersea, S.W.11.

MANCHESTER.—Immediately, Lady Dispenser (Hall qualification preferred), accustomed to good-class business; 9 to 7, Friday and Saturday 8, Wednesday 1 o'clock; no Sunday duty. Kindly state age, experience, and salary required. Applications not answered in four days courteously declined. Wheeldon, Chemist, West Didsbury.

NORTH STAFFORDSHIRE INFIRMARY, Stoke-on-Trent (General Hospital).—Assistant Dispenser required, resident; Apothecaries Hall qualification. State age, salary experience.

ROYAL VICTORIA INFIRMARY, Newcastle-upon-Tyne.—Committee invite applications for the post of Head Pharmacist to the above Institution. He must hold the minor qualification of the Pharmaceutical Society, and must be conversant with the ordering and care of all Drugs, Dressings, Surgical Instruments, and Appliances, and also be familiar with routine work of a large hospital. Salary £350 per annum. Applications, giving full particulars of experience, accompanied by copies of not more than two recent testimonials, must be in on or before Tuesday, 22nd August, 1922, addressed to S. Dunstan, House Governor and Secretary.

S. WALES.—Wanted, an unqualified Assistant; must be a Counterman and Salesman; knowledge of Photography essential; outdoors. Apply, Holton Pharmacy, 69 Holton Road, Bryn Dock.

ASSISTANT wanted immediately, unqualified, for Counter work and Dispensing. Please reply, giving full particulars as to salary, age and references, to "East London Pharmacist," 26/1, Office of this Paper.

COMPETENT Assistant of good address (unmarried); one of good-class experience, for old-established Family, Retail Dispensing business; must be active and reliable; send full particulars, with references, and salary required (outdoor) 25/1, Office of this Paper.

DISPENSER wanted as Locum for fortnight, starting August 14.—Apply, after 5 p.m., Dr. Thornton, 573, High Road, Forest Gate.

DISPENSER.—Qualified Young Lady required with experience or ordinary Dispensing or Retail Pharmacy. Apply, Selfridge's Staff Office, Oxford Street, W. 1.

FIRST Salesman, retail perfumery and toilet products; must be well educated gentleman between 30 and 40 years of good appearance and address, tall, and accustomed to interviewing best class of customers; good salary and permanency. Apply, 10/298, Office of this Paper.

IN a few weeks.—A competent and reliable qualified Chemist to take sole charge for about 3 months; must have numerous references; give full particulars in first letter, and salary (outdoors). Applications unanswered in 6 days respectfully declined. Robinson, 272, Wigan Road, Bryn, Cheshire.

LOCUM wanted, qualified, reliable, from August 19 to September 2. Brierley, Chemist, Greenfield, near Oldham.

LOCUM.—Wanted, for two weeks from September 4, Clerkenwell, London, E.C.; qualified; middle and working class family business. Terms to 24/24, Office of this Paper.

OPPORTUNITY occurs for first-class Pharmacist, unmarried, about 30, not recently qualified, to obtain progressive position in a good-class business. Particulars of experience, etc., to 26/18, Office of this Paper.

QUALIFIED Lady (Minor) wanted for small business in West End; 30s., with commission; all found; comfortable home. 23/40, Office of this Paper.

QUALIFIED Locum required for week or 10 days for Retail, Photographic and Dispensing business; good references and knowledge of Photography essential.—Marshall & Co., 5, Picnic Road, Ebury Bridge, S.W.1.

QUALIFIED Senior and Junior; both must be of gentlemanly appearance and good address, and have had the experience. Apply, by letter, giving full particulars, to "B. Messrs Cooper, Son and Co., Ltd., 24, Sloane Street, S.W.1.

RETURNING PHOTOS, &c.

Advertisers in this section who receive portraits and copies of testimonials from applicants with a stamped addressed envelope for reply, are reminded that the undue retention of these often means a hardship to the sender. All personal documents should be returned as promptly as possible after perusal.

ART unqualified Assistant required; must have thorough knowledge of the Business and unquestionable references. V. 213, High Street North, East Ham. M by letter, en-photograph.

QUALIFIED Assistant required (London); first-class experience, good Counterman, reliable Dispenser, knowledge of photography essential. Apply by letter, giving full particulars, 9/297, Office of this Paper.

WHOLESALE.

for 40 words or less; 6d. for every additional 10 words or less, prepaid.

ADVERTISER may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

WELL-CONNECTED Representative wanted for original rapid selling lines; 15 per cent. commission; state best territory. 9/296, Office of this Paper.

EXPERIENCED Laboratory Foreman required with knowledge of the manufacture of Chemists' Specialities and Preparations. Details of experience and salary required first letter to Works' Manager, "Ucal," Cheltenham Spa.

FOREIGN representatives, established, with good connections, wanted to take orders on commission. Apply, giving full particulars, to The Veno Drug Co., Ltd., Veno Buildings, Manchester.

MANUFACTURING Chemists and Wholesale Drug Firm (Ireland) extensively engaged in home and export trade require capable and experienced General Manager to take full control of warehouse, manufacturing laboratories, packed goods and export departments. Must have experience of buying, raw and finished materials, on best terms, and have keen knowledge of best and cheapest sources of supplies, home and foreign. Permanent position, good remuneration and commission, with progressive incentives for judiciously directed activities. Replies, in strictest confidence, "Corgagh," 9/274, Office of this Paper.

OPPORTUNITY occurs for a few well-known Travellers to introduce advertised specialities to Pharmacists on commission basis; goods of high repute which will be extensively used. Full details of ground covered to 9/289, Office of this Paper.

WANTED Clerk wanted by well-known London wholesale Chemist and Druggist. State previous experience, age, and salary required. 9/295, Office of this Paper.

REPRESENTATIVE required by manufacturers of high-class Toilet Preparations, Perfumes, Soaps, &c., with connection with London Hairdressers, Chemists, Stores, &c. Splendid prospects for a capable man. Also Representatives for same lines in the Provinces. Full particulars, 9/290, Office of this Paper.

REPRESENTATIVES wanted for all parts of United Kingdom calling on Chemist and Fancy Stores, etc.; articles bearing profit; liberal commission. Apply by letter, 24/39, Office of this Paper.

REPRESENTATIVES wanted to sell good selling proprietary; liberal commission offered. The Spa Toilet Co., Leamington-Spa.

REPRESENTATIVES wanted for all parts of England to push good substitute for Gum Tragacanth; commission. Apply 7, Office of this Paper.

HAVING Brush Manufacturer requires first-class Representative. State experience, full particulars, to 9/291, Office of this Paper.

TRAVELLERS required, calling on hospitals, to take up a side line on commission an Electro-Medical appliance. 3, 48/34, Office of this Paper.

WANTED, smart Town Despatch and Order Clerk, with previous experience in Chemist and Druggist trade. State salary and wages required. 9/294, Office of this Paper.

WELL-KNOWN Edinburgh firm of Wholesale Druggists desires one or two capable Representatives with live connections with Pharmacists, Doctors and Vets. in Lincoln, Nottingham, Derby, Stafford, Leicester and further South. Applicants must give complete details in applying, stating age, exact territory covered, including time required to overtake a complete journey, approximate expenses, with some idea of prospective turnover in Drugs, Pharmaceutical Preparations and Packed Goods; also salary desired. 9/292, Office of this Paper.

[Colonial, Indian and Foreign.]

INDIA—Wanted, qualified Chemist at once; single; good salary; passage paid both ways. Apply, stating age, and giving particulars of experience, &c., to P. C. B., 47/28, Office of this Paper.

PARIS—Wanted, immediately, competent Assistant accustomed to good-class trade; knowledge of French preferred. Apply, stating all particulars, to Mr. S. C. Ritchie, 6, Northumberland Avenue, London.

SITUATIONS WANTED.

[HOME.]

RETAIL.

2s. for 18 words or less; 6d. for every additional 10 words or less, prepaid.

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A.A.A.—ASSISTANT, lady, Minor, tall, 24, 5 years' good experience, Dispensing and Retail, requires post; West Country preferred; free end of month. 25/39, Office of this Paper.

A.A. LOCUM, experienced, reliable; 37; free now. "M.P.S.," 3, High Road, Willesden Green, N.W. Phone: Willesden 1039.

A PHARMACIST, qualified; best West-End experience; disengaged shortly; London. Davies, 13, Upper Baker Street.

A QUALIFIED, 41, married, Locum or permanency; disengaged; experienced Photography. Foster, Rock Channel, Rye.

A QUALIFIED Chemist; fully experienced and capable in all branches; excellent references; disengaged shortly. Chemist, 44, Elmhurst Road, Forest Gate, E.7.

A QUALIFIED Locum; lady; testimonials; free August 23 to September 12 inclusive. 162, Devonshire Road, Forest Hill, S.E.

A DVERTISER, active, excellent all-round experience, desires permanency; unqualified; 45; disengaged. Fletcher, 11, Kingsdown Road, Holloway, N.19.

A DVERTISER, 30 years' practical experience (14 years management), desires permanency; Branch, Senior; highest references; Locum entertained; moderate. Munslow, Evesham.

A DVERTISER, 43, energetic and thoroughly capable, accustomed to varied and good-class management, desires change; married; profits and increase of returns a speciality; unregistered; keen Buyer and smart Salesman; highest references; moderate salary. "Manager," 25/31, Office of this Paper.

A DVERTISER, active, thoroughly experienced all branches, seeks post as Assistant in Pharmacy or management Drug Stores; wife to assist if required; live Salesman; highly recommended. State terms to "Energy," 26/13, Office of this Paper.

A N elderly qualified Chemist desires employment with short hours or part-time. Baker, 81, Elgar Road, Reading.

A N experienced Dispenser (lady), Hall; Locum or permanent; experienced Hospitals and Surgery (Book-keeping); excellent testimonials; in London or near. 26/24, Office of this Paper.

A S Locum or Manager; qualified; 48; disengaged August 12. Doble, 11, Grove Street, Bath.

A S Locum or permanency; first-class experience and references; energetic; reliable. "G.," 17, Cherville Street, Romsey Hants.

A SSISTANCE.—Locum; disengaged August 12; immediately. "Quis," 2, Southam Cottages, Church Road, Knaphill, Woking, Surrey.

A SSISTANT, energetic, abstainer; Photography; West End 7 years; 20 years' experience; A1 references. MacLellan, 4, Arundel Gardens, W.11.

A SSISTANT, unqualified, age 31, tall, good appearance, requires berth in London (S.W. preferred); referred Botany, now studying to complete; interview arranged; experienced. 71, Adames Road, Fratton.

A SSISTANT, 20, tall, requires position in Lancashire; North-East preferred; 6 years' experience. H. Ratcliffe, 17, Stanley Road, Peel Green, Manchester.

A SSISTANT (24); unqualified; tall; good appearance; single; disengaged; Midlands or sea preferred. Skey, 22, Upper Chase Road, Malvern.

A SSISTANT; unqualified; active; age 49; good Counter and Dispensary experience; disengaged; salary 50s. weekly. Richardson, 100, St. Leonard's Street, Bromley-by-Bow.

A SSISTANT; 23; unqualified; trustworthy; good experience and reference; Midlands or East Anglia preferred. Read, Dingle Street, Oldbury, Worcs.

A SSISTANT or Locum, qualified (23), requires post; Dispensing and Counter; references; disengaged. "Chemist," 74, Chewton Road, Walthamstow, E.17.

A SSISTANT; College trained; competent; excellent references; Locum or permanency; disengaged; age 31. "Aspirin," Brambys, Rowlands Road, Worthing.

A SSISTANT, 32, tall, good appearance, unsuccessful Minor, desires permanency; capable Dispenser, Window-dresser, Counter, and Photography; please state salary, etc.; disengaged; Locum entertained. Rigley, 21, Appletongate, Newark-on-Trent.

A SSISTANT (27), unqualified, disengaged, with good all-round experience; Midlands preferred. G. B., 14, Sebright Avenue, London Road, Worcester.

A SSISTANT requires Sunday work; any kind; 15 years' experience. 25/32, Office of this Paper.

A SSISTANT; unqualified; accurate Dispenser; 25; 6 ft.; excellent capabilities, recommendations, and references; fluent French; Photography; moderate salary. Apply "Captator," 25/4, Office of this Paper.

A SSISTANT requires post in or near Liverpool; 14 years' all-round experience; well recommended; permanency desired. Terms and when required to "Sales," 26/130, Office of this Paper.

COUNTER, Stock or Warehouse; 15 years' Stores experience; Drugs, Sundries, Surgical, Toilet, etc. Rex, 135, Seaford Road, N.15.

DISENGAGED.—Male Dispenser-Dresser; accustomed to accidents. State terms. 23/3, Office of this Paper.

DISENGAGED, elderly, qualified; well recommended; permanent or Locum; terms moderate. Joseph Allen, 17, Prince's Road, Wimbledon.

DISENGAGED.—Assistant, unqualified; 27; married; Dispensing, Counter, Window-dressing, and Photography; excellent references. East-End preferred. Apply, L. A. D., 12, Lathom Road, East Ham, E.6.

DISPENSER, qualified, 20 years' Hospital experience, last post 10 years, full charge of drugs, instruments, ven. clinic supplies, etc., desires post any capacity; Locum or permanency; excellent testimonials. Cross, 17, Roseville Terrace, Roundhay Road, Leeds.

EXPERIENCED qualified Pharmacist, with highest testimonials; accustomed to manage; disengaged. "M.P.S.," 22, Elleson Road, Barnes, S.W.

HOLIDAY Relief Work by male Dispenser; Hall and Minor; Institution, Doctors, or shop; London district 25/35, Office of this Paper.

HOLIDAYS or permanency; unqualified; 22 years' West London and suburban experience. "Chemists," 10, shot Road, Reigate, Surrey.

JUNIOR or Improver; 3 years' all-round experience; tall, appearance, and address; disengaged September 18. Pt 31, Maryon Road, Charlton, S.E.7.

JUNIOR (unqualified); very good experience; excellent references; moderate salary; Photography; reliable; Window dressing, excellent. Apply, 24/6, Office of this Paper.

JUNIOR Assistant; 20; tall, good appearance and address; steady, reliable; about 4 years' experience Counter, Dispensing and Photographic; excellent references; disengaged. Harper, 115, Cannock Road, Wolverhampton.

LADY Dispenser (Hall) required post with Doctor or Hospital; experienced with both; good testimonials. Cottage, Ash Vale, Surrey.

LADY (Hall certificate), 5 years' retail experience, seeks to Apply Painter, 21, Alexander Road, Bournemouth.

LOCUM or Assistant; qualified; 24; moderate salary; London or district preferred. "Pharmacist," 25, Atherfold Road, Clapham, S.W.

LOCUM, unqualified, 23, referred one subject July; Dispensing or Counter; free till October. Hudson, Harecroft Road, Wisbech.

LOCUM or permanency; unqualified; 40; 20 years' good all-round experience; disengaged August 16. H. E. Fisher, 135a, Brockley Rise, Forest Hill, S.E.23.

LOCUM; qualified; disengaged September 18; London or district.—Summers, 98, Greyhound Lane, Streatham Common, S.W.

LOCUM (26); qualified; free from September 11.—D. Williams, 12, Maybank Road, South Woodford, N.E.18.

LOCUM; unqualified; competent and thoroughly recommended; distance immaterial; abstainer; disengaged. "C.," 39, Thomas Road, Finsbury Park, N.

LOCUM, 25 years' first-class experience in all branches "H. P.," The Bungalow, Stonor, Henley-on-Thames.

LOCUM or holiday relief; reliable; reasonable; City, W. End, and Hospital experience; disengaged; best references "Lychen" 65, Pevensey Road, Eastbourne.

LOCUM; qualified; experienced Manager; disengaged 23 18 years' experience; unexceptional references; 25s. expenses. "Pharmacist," 35, Catherine Street, Salisbury.

LOCUM; disengaged about the 12th; elderly; very active; qualified; thoroughly experienced; town and country; good Salesman; well recommended. Apply 25/1, Office of this Paper.

M.P.S. (25), thoroughly capable, completes long engagement end of August, prefers permanency. Gill, 73, Royal Park Avenue, Leeds.

MAJOR (27) desires permanency or Locum; 10 years' experience; London or South Coast preferred, but not essential. Dudoney, 30a, Waterloo Street, Hove.

MANCHESTER or suburbs.—A good man for the holidays or until October; Part 1; 23; Photography; best-class experience. "Misere," 26/6, Office of this Paper.

MANAGER, at present in employment, desires change, London district preferred; Window-dresser, Salesman, Dispensing, knowledge of Optics and Photography; 35; energetic. "M.P.S.," 24/9, Office of this Paper.

PART time; outdoor; London; unqualified; 40; overstocked goods accepted part salary. Horton's Drug Store, 1 High Road, Willesden Green, N.W.

PART time; experienced; mornings, or evenings from 5. "Radix," 89, Clapham Road.

TIME Assistant; 29; quick Dispenser, Photography, and Counter; high recommendations; London and suburbs. "G. C." 25/38, Office of this Paper.

LIFIED; 26, married. requires permanency, Manager or assistant; energetic; excellent references. Apply E. J. an, 176, Gorton Road, Reddish, Stockport.

LIFIED; nine years with last employer as Senior assistant; post as Manager desired; abstainer; single; remuneration asked by conscientious man; Locum work red. "R. C." 22/6, Office of this Paper.

LIFIED, Continental and West-End experience, desires part-time employment, viz., evenings, Sundays; University on full time. Commence October. Rutherford, 26, East h Road, S.E.

LIFIED Chemist (39), married, seeks engagement as manager, branch or otherwise; interest entertained; Pro and London experience; many years now as senior and ter with high-class establishment; disengaged shortly. ne, Sackville House, Grimsby.

LIFIED Manager or Locum; 5 ft. 9 in.; 20 years Manager; energetic; references to date; disengaged Sep- 2; London or provinces; widower; no encumbrance. B. t, 37, Islip Street, Kentish Town, London.

FSMAN, 26, qualified, single, tall, at present Branch anager, desires change; experienced in Photography. S., 220a, Fulham Palace Road, Hammersmith.

years' experience.—Smart qualified man seeks post; ounter, Dispensing, Photography; age 23. "T." 50, Avenue, Southampton.

QUALIFIED (25), excellent references, thoroughly expe- ienced, tall, knowledge of Photography, desires post. c/o Mr. Atkin, Fiskerton, near Lincoln, Lincolnshire.

QUALIFIED.—As Manager of drng. store or Assistant; age 28; 12 years' varied experience; first-class references. Office of this Paper.

NG man, well educated, wishes to hear of opening as a hemist's Assistant. 23/1, Office of this Paper.

WEEKLY.—Unqualified; abstainer; experienced, London and country; Photography, Dispensing and General; disengaged; 16 years' London experience; good refer- "Aspirin," 390, Clapham Road, S.W.9.

WHOLESALE.

r 18 words or less; 6d. for every additional 10 words or less, prepaid.

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QUALIFIED Chemist, well experienced in the London holesale market, etc., would be glad to receive offers from desiring the services of a keen, capable business man. 18/3, of this Paper.

VERTISER, young, seeks position in wholesale; financial interest entertained; Toilet Goods experience, also Retail; address and appearance. "Z." 22/3, Office of this Paper.

VERTISER would assist in Warehouse, Retail, or Institution for low salary where prospects are good; age 48; very; adaptable; of good appearance, but prepared to "rough" years' wholesale experience; unqualified; exceptional nces. Lisle, "Glenlea," Hainault, Ilford.

SISTANT in Galenical Laboratory or Works; capable of taking charge; 10 years' excellent manufacturing expe- "Q. S." 26/22, Office of this Paper.

UGGIST, Sndriers, etc.—Advertiser seeks berth; long expe- ience; indoors or outdoors. "Aspirin," 37, Brunswick, N.15.

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L and Tablet Coater seeks engagement; used to all kinds of coating; 9 years' experience; age 26; single. G. Tugwell, utland Road, Hove.

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TABLET Maker and Sugar Coater; experienced; moderate salary. G. Baker, 38, Barbara Street, Barnsbury, N.7.

YOUNG man, recently graduated Cambridge, Chemistry (including mineralogy and geology), Law, desires post in export and import house where prospects of advancement for the right man exist. Write P.C.B., 49/25, Office of this Paper.

MISCELLANEOUS.

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SHOP Fittings, for the Summer Trade, silent Salesman Cases, all Glass Counter, Camera Cases, etc. All repay their cost quickly. PHILIP JOSEPHS & SONS, LTD., Shop Fitters, 93, Old Street, London, E.C.1.

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Before placing your Company in other hands, get my quotation. I specialise in Chemist and tradesmen private companies and quote inclusive charge; no extras. A. B. Slack, 180, Garston Old Road, Liverpool.

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PHARMACEUTICAL Books wanted; send priced list. Gower, Bookseller, 41, Voltaire Road, Clapham.

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PURCHASE quantity of Casco Teeth, Pump Chair, and Dental Cabinet. A. V. C. Spencer, 110, Northdown Road, Margate.

RADIUM SALT, pure of Residues, old Applicators, etc. Apply Harrison Glew, Radium Laboratories, 156 Clapham Road, S.W.9

SECOND-HAND Shop Rounds, Scales, Mortars and Pestles, Pill Machine, etc. "Pharmacists," 20, Newby Terrace, Stockton-on-Tees.

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An INTERNATIONAL COMMERCIAL AUTHORITY

IT is generally recognised by all in pharmacy and the drug, chemical and allied trades that the only worth-while business journal for the retailer, the wholesaler, the manufacturer and the exporter, is

THE CHEMIST & DRUGGIST

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THE PUBLISHER, THE CHEMIST AND DRUGGIST,
42 CANNON STREET, LONDON, E.C. 4.

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P.A.T.A.

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